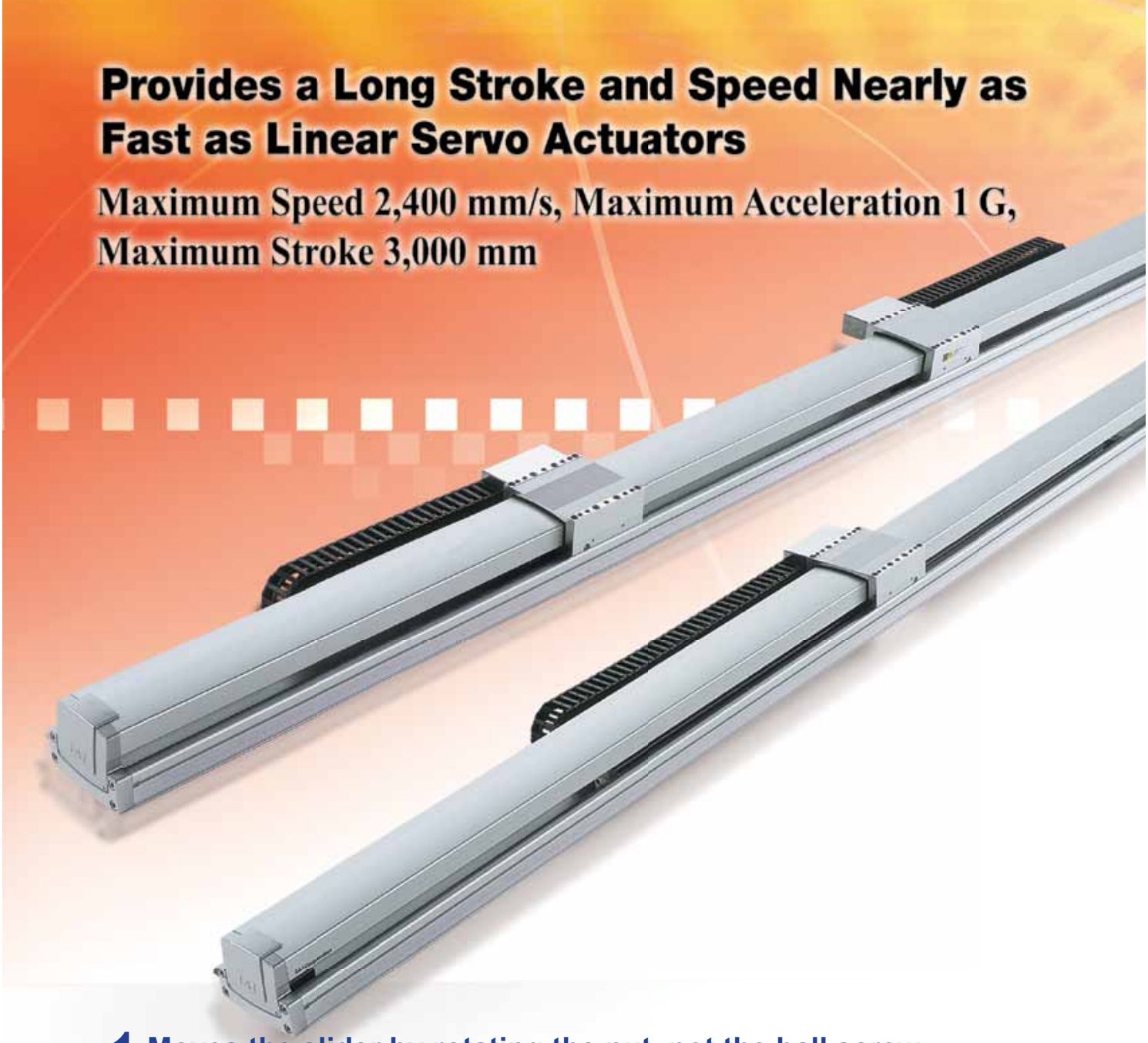
IAI
Quality and Innovation

Rotating nut linear actuator

NS

Provides a Long Stroke and Speed Nearly as Fast as Linear Servo Actuators

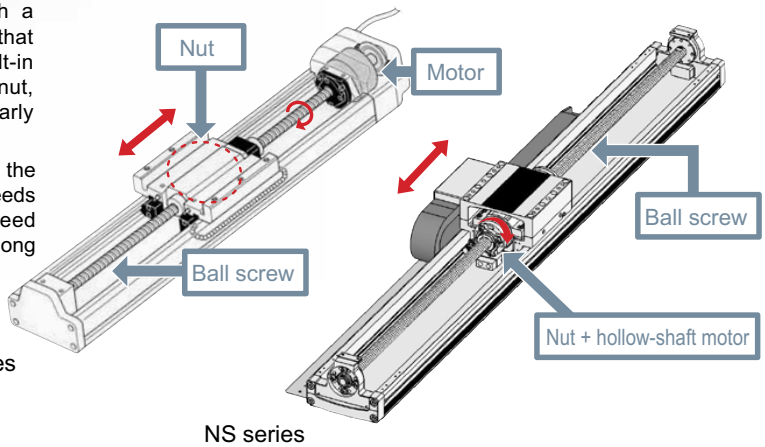
Maximum Speed 2,400 mm/s, Maximum Acceleration 1 G, Maximum Stroke 3,000 mm



1 Moves the slider by rotating the nut, not the ball screw

The actuator is constructed with a fixed ball screw and a slider that moves linearly when its built-in hollow-shaft motor rotates the nut, instead of the nut moving linearly when the ball screw is rotated.

Since the ball screw is not rotated, the effects of dangerous rotation speeds are reduced, making high-speed movement possible even with a long stroke.

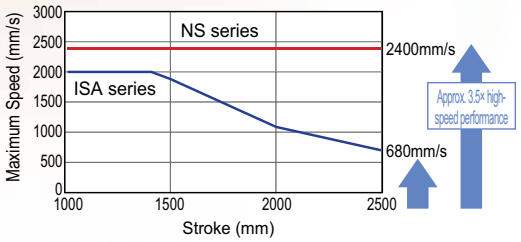


ISA series

NS series

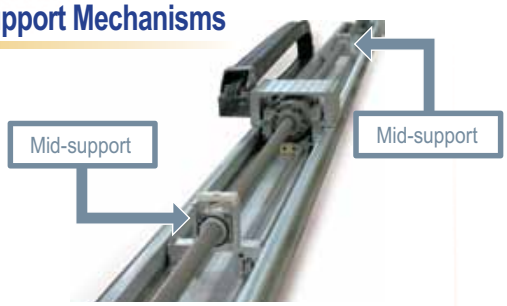
2 High-speed performance with a maximum speed of 2,400 mm/s and maximum acceleration of 1 G

A maximum speed of 2,400 mm/s is attained through the use of a high-lead precision screw (equivalent to C5). In addition, since there is minimal impact from dangerous rotation speeds, movement is possible at the maximum 2,400 mm/s, even at the maximum stroke (3,000 mm), greatly reducing the cycle time.



3 Long stroke of 3,000 mm achieved with Mid-Support Mechanisms

By equipping the NS series with mid-support mechanisms which proved well with the ISA series, deflection of the ball screw is suppressed and vibrations are reduced, allowing a stunning 3,000 mm stroke with a ball screw.

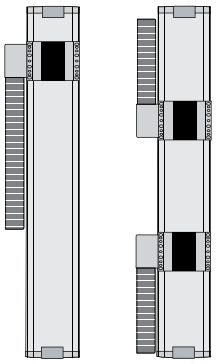


4 Multi-slider compatibility (equipped with collision prevention function)

The multi-slider type, which allows two sliders on a single axis to move independently, saves space and greatly reduces cycle time. In addition, the "collision prevention function", which prevents collisions between sliders, is standard with the XSEL and SSEL controllers.

5 Vertical type (brake as standard equipment)

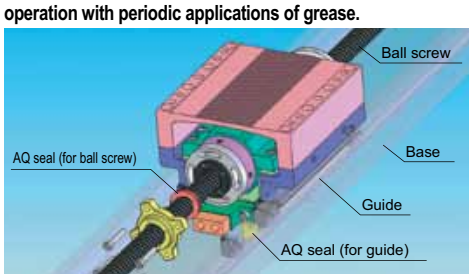
A brake is installed as standard equipment on the vertical type to prevent the slider from falling if it is vertical when the unit is turned off. This is available with either a single slider or multiple sliders.



Single slider Multiple sliders

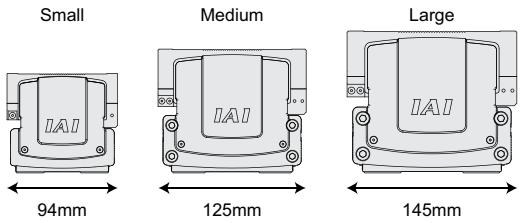
6 AQ seal as standard equipment, providing a long maintenance-free period

The AQ seal is a lubricating unit that contains a lubricant solidified with a resin. Lubricant is supplied to the guide and the ball screw over a long period of time, providing an extended maintenance-free period of 3 years or 5,000 km of operation with periodic applications of grease.



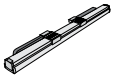
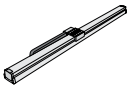
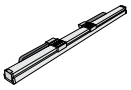
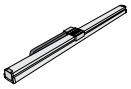
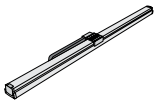
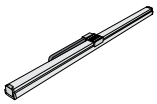
7 Multitude of variations

The extensive product line-up, which allows you to select specifications such as the size, slider type and installation direction, ensures the optimum configuration for any number of applications.



Sizes: 3 types (small, medium and large)
Sliders: 2 types (single slider and multiple sliders)
Installation direction: 2 types (horizontal and vertical)
Cable track installation direction: 4 directions
Provided with mid-supports

Specification Table

Size	Type	Slider	Appearance	Type	Encoder Type	Motor Type (W)	Lead (mm)	Stroke (mm)	Rated Thrust (N)	Maximum Payload (kg)	Maximum Speed (mm/s)	Reference Pages
Small	Horizontal	Single Slider		SXMS	Absolute Incremental	60	12	400~800	70.8	15	720	→P7
		Multi-Slider		SXMM				200~800				→P8
	Vertical	Single Slider		SZMS				400~800		3	600	→P9
		Multi-Slider		SZMM				200~800				→P10
Medium	Horizontal	Single Slider		MXMS		200	30	500~1500	113.9	25	1800	→P11
							20		170.9	40	1200	
		Multi-Slider		MXMM			30	300~1500	113.9	25	1800	→P12
							20		170.9	40	1200	
	Horizontal/ With Mid-supports	Single Slider		MXMXS			30	1600~2200	113.9	25	1800	→P13
							20		170.9	40	1200	
	Vertical	Single Slider		MZMS			20	500~800	170.9	6	1000	→P14
		Multi-Slider		MZMM				300~800				→P15
Large	Horizontal	Single Slider		LXMS		400	40	500~2200	170	40	2400	->P16
							20		340.1	80	1300	
		Multi-Slider		LXMM			40	250~2250	170	40	2400	→P17
							20		340.1	80	1300	
	Horizontal/ With Mid-supports	Single Slider		LXMXS			40	2300~3000	170	40	2400	→P18
							20		340.1	80	1300	
	Vertical	Single Slider		LZMS			20	500~1000	340.1	16	1000	→P19
		Multi-Slider		LZMM				250~950				→P20

Model

NS — [ ] — [ ] — [ ] — [ ] — [ ] — T2 — [ ] — [ ]

Series | Type | Encoder type | Motor type | Lead | Stroke | Applicable Controllers | Cable length | Options

Encoder type

A	Absolute
I	Incremental

Motor type

60	60W
200	200W
400	400W

Lead

12	12mm
20	20mm
30	30mm
40	40mm

Stroke

200	200mm
⟆	⟆
3000	3000mm

Applicable Controllers

T2	SCON
	SSEL
	XSEL-P/Q

Cable length

N	No cable
P	1m
S	3m
M	5m
X	Length specified

Type

SXMS	Small horizontal type/single slider
SXMM	Small horizontal type/multi-slider
SZMS	Small vertical type/single slider
SZMM	Small vertical type/multi-slider
MXMS	Medium horizontal type/single slider
MXMM	Medium horizontal type/multi-slider
MXMXS	Medium horizontal type/single slider with mid-support
MZMS	Medium vertical type/single slider
MZMM	Medium vertical type/multi-slider
LXMS	Large horizontal type/single slider
LXMM	Large horizontal type/multi-slider
LXMXS	Large horizontal type/single slider with mid-support
LZMS	Large vertical type/single slider
LZMM	Large vertical type/multi-slider

Options

AQ	AQ seal
B	Brake (for vertical type)
C	Creep sensor (for large type)
CT1	Standard cable track direction 1
CT2	Standard cable track direction 2
CT3	Standard cable track direction 3
CT4	Standard cable track direction 4
ET1	Extended cable track direction 1
ET2	Extended cable track direction 2
ET3	Extended cable track direction 3
ET4	Extended cable track direction 4
L	Limit switch (for large type)
RT	Guide with ball-retaining mechanism

Table of Mass Capacities by Acceleration Condition

1. Horizontal Installation

Type	Mid-Support	Motor Output (W)	Lead (mm)	Maximum Speed (mm/s)	Maximum Acceleration (G)	Load Capacity by Acceleration (kg)							
						0.3G	0.4G	0.5G	0.6G	0.7G	0.8G	0.9G	1.0G
Small	No	60	12	720	0.8	15	7	5	3	1	0.5	—	—
Medium	No	200	30	1800	1.0	25	16	10	6	3.5	2	1	0.5
			20	1200	0.8	40	28	18	10	5	2.5	—	—
	Yes		30	1800	0.3	25	—	—	—	—	—	—	—
			20	1200		40	—	—	—	—	—	—	—
Large	No	400	40	2400	1.0	40	30	25	20	17	15	13	10
			20	1300		80	60	48	40	34	30	27	24
	Yes		40	2400	0.3	40	—	—	—	—	—	—	—
			20	1300		80	—	—	—	—	—	—	—

2. Vertical Installation

Type	Mid-Support	Motor Output (W)	Lead (mm)	Maximum Speed (mm/s)	Maximum Acceleration (G)	Load Capacity by Acceleration (kg)							
						0.3G	0.4G	0.5G	0.6G	0.7G	0.8G	0.9G	1.0G
Small	No	60	12	600	0.7	3	2	1.5	1	0.5	—	—	—
Medium	No	200	20	1000	0.5	6	4	3	—	—	—	—	—
Large	No	400	20	1000	0.8	16	12.3	11.1	10.1	9.2	6	—	—

Details of Main Unit Options

AQ Seal (Standard Equipment)

Model **AQ**

Details

The AQ seal is a lubricated unit using lubricated materials in which a lubricant is solidified with a resin.
The lubricant is supplied when the AQ seal contacts the guide and the ball screw thread, making it maintenance-free for a long period with the application of grease. (Standard equipment for all models)

Brake (Standard Equipment for Vertical Type)

Model **B**

Details

This is a holding mechanism to prevent the slider from falling and damaging installed items when the power or the servo is off when the actuator is used at a vertical position.(Standard equipment for the vertical type/No brake for the horizontal type.) *A brake box is attached for the MZMS/MZMM/LZMS/LXMM types.(See P21)

Creep Sensor (Only for Large type)

*Not supported for Small/Medium types.

Model **C**

Details

When the homing operation is carried out with the incremental specifications, in order to shorten the homing time, the slider is moved at high speed to just before the position and when it passes this sensor, the speed is dropped to resume normal homing operations. Since this sensor is mounted within the actuator itself, it does not affect the appearance or external dimensions.

Installation Direction of Standard Cable Track/Installation Direction of Expanded Cable Track

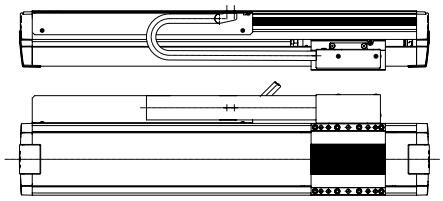
Model **CT1/CT2/CT3/CT4 (Installation direction of standard cable track)**
ET1/ET2/ET3/ET4 (Installation direction of extended cable track)

Details

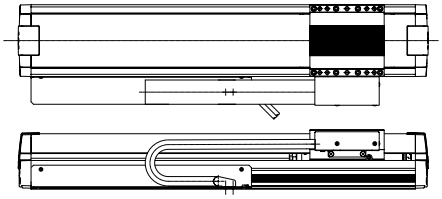
The installation directions for cable tracks can be selected from the four types shown below, including the standard installation direction. (the body base has a reamer hole on the right side and a long hole on the left side).
In addition, if the capacity is insufficient for the standard cable track, an extended cable track with increased capacity can be selected.

Note 1: The cable track can be installed in one direction only for the multi-slider type.
Note 2: For NS-S and NS-M, the extended cable cannot be selected.

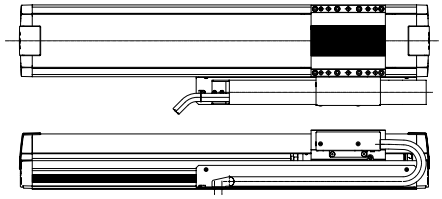
[Installation Direction]



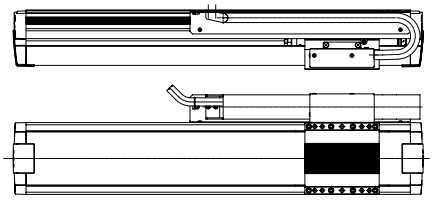
Installation Direction1 (Standard)
Standard Cable Track: Code CT1
Extended Cable Track: Code ET1



Installation Direction 2 (Standard mirror-image)
Standard Cable Track: Code CT2
Extended Cable Track: Code ET2



Installation Direction3 (Standard; reverse home)
Standard Cable Track: Code CT3
Extended Cable Track: Code ET3



Installation Direction 4 (CT2; reverse home)
Standard Cable Track: Code CT4
Extended Cable Track: Code ET4

Origin Point Limit Switch (For Large type) *Not supported for Small/Medium types.

Model **L**

Details

For the normal homing operation in the NS series, the "pressing method" is employed, wherein the slider is pressed against the stopper to detect the Z phase after reversing and to decide the home position.
The L option (Home Limit Switch) for this homing operation detects and reverses using the proximity sensor instead of the pressing method.
Since this sensor is mounted within the actuator itself, it does not affect the appearance or external dimensions.

Guide with Ball-retaining Mechanism (Standard Equipment)

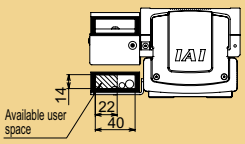
Model **RT**

Details

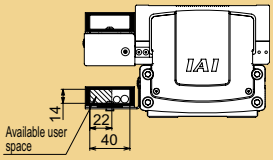
This is a ball-retaining mechanism for eliminating collisions between balls to provide a long maintenance-free period and long life by inserting a spacer (a retaining device) between the guide balls (steel balls) (Standard equipment for all models)

Internal Dimensions of Cable Track

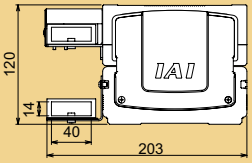
Small



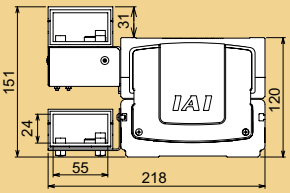
Medium



Large



<<Standard Cable Track>>



<<Extended Cable Track>>

Regarding the outer diameter and the number of cables to be stored

(1) Make gaps of at least 2 mm between the outer diameter and the inside wall of the cable and between the cables.
(2) The outer diameter of the cables should be φ12 or less and they should be arranged and used horizontally so that they do not cross each other.
(3) Note that the life of the cables may be extremely shortened due to forces applied on the cables if the number of cables stored exceeds the specification.

Regarding the outer diameter and the number of cables to be stored

(1) Make gaps of at least 2 mm between the outer diameter and the inside wall of the cable and between the cables.
(2) For the cables, the outer diameter of the standard cable track should be φ12 or less and that of the extended cable track should be φ16.8 or less. They should be arranged and used horizontally so that they do not cross each other.
(3) Note that the life of the cables may be extremely shortened due to forces applied on the cables if the number of cables stored exceeds the specification.

NS-SXMS

Single-Axis Robot Small Nut Rotation Type Main Unit Width 94mm 60W
Horizontal Type Single Slider

■Model

NS — SXMS — □ — 60 — □ — □ — T2 — □ — AQ — □ — RT

Series	Type	Encoder Type	Motor Type	Lead	Stroke	Applicable Controller	Cable Length	Option
NS	SXMS	A: Absolute I : Incremental	60: 60W	12: 12 mm	400: 400mm , 800: 800mm	T2: SCON SSEL XSEL-P/Q	N :No S :3m M:5m X□□:Length Specified	See the options table below

Model/Specification

Model	Encoder Type	Motor Output (W)	Lead (mm)	Stroke (mm)	Speed (mm/s)	Acceleration (Note 1)				Payload Capacity (Note 1 & 2)				Rated Thrust (N)
						Horizontal(G)		Vertical(G)		Horizontal(kg)		Vertical(kg)		
						Rated	Maximum	Rated	Maximum	Rated Acceleration	Maximum Acceleration	Rated Acceleration	Maximum Acceleration	
NS-SXMS-①-60-12-②-T2-③-AQ-④-RT	Absolute Incremental	60	12	400~800	720	0.3	0.8	Horizontal Only		15	0.5	Horizontal Only		70.8

*In the model above, ① indicates the type of encoder, ② indicates the stroke, ③ indicates the cable length, and ④ indicates the option.

Option

Name	Model	Reference page	Note
AQ Seal	AQ	→P5	Standard Equipment
Installation Direction of Standard Cable Track	CT1~CT4	→P5	Enter CT1 for standard installation
Guide with Ball-Retaining Mechanism	RT	→P6	Standard Equipment

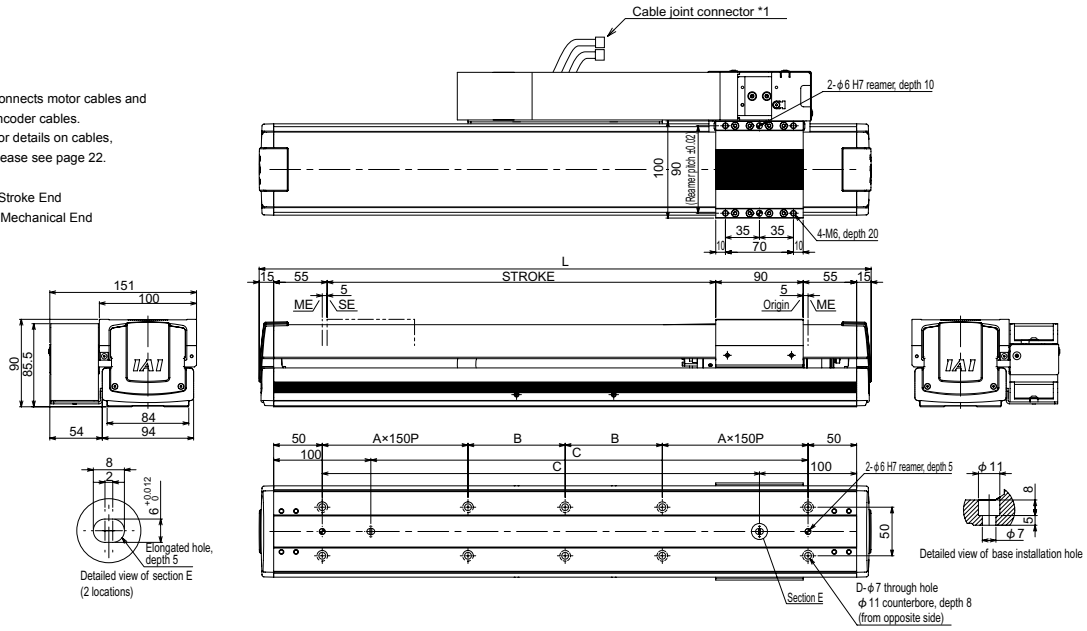
Common specifications

Driving Method	Ball Thread, Diameter φ10 mm, Equivalent to Rolled C10
Repeated Positioning Accuracy	+/- 0.02mm
Backlash	0.05mm or less
Guide	Integrated to Base
Dynamic Allowable Moment(Note 3)	Ma:28.4N·m Mb:40.2N·m Mc:65.7N·m
Overhung load length	Ma Direction: 450mm or less; Mb and Mc Direction: 450mm or less
Base	Material: Aluminium, White Alumite Treatment
Cable Length (Note 4)	N: No cable; S: 3 m; M: 5 m; X□□: Length specified
Ambient Temperature	0~40 degrees Celsius, 85% RH or less (No condensation)

Dimensional drawing

*1 Connects motor cables and encoder cables.
For details on cables, please see page 22.

SE: Stroke End
ME: Mechanical End



*For the internal dimensions of the cable track, please see page 6.

Stroke	400	500	600	700	800
L	630	730	830	930	1030
A	1	1	1	2	2
B	100	150	200	100	150
C	450	550	650	750	850
D	10	10	10	14	14
Mass(kg)	5.8	6.5	7.1	7.8	8.4

Applicable Controller Specifications

Applicable Controller	Max. Number of Axes Controlled	Compatible Encoder Type	Operation Method	Power/ Voltage
X-SEL-P/Q	6 axis	Absolute/ Incremental	Programs	Three-Phase/ Single-Phase 200VAC
SSEL	2 axis			Single-Phase 100/200VAC
SCON	1 axis		Positioner Pulse Train Control	

Note

(Note 1) For the relationship between acceleration and payload capacity, see page 4.
(Note 2) The values shown are payload capacities during operation at maximum speed.
(Note 3) For a 10,000-km running life.
(Note 4) The maximum cable length is 30 m. Please specify length in meters.
(E.g., X08 = 8 m)

NS-SXMM

Single-Axis Robot Small Nut Rotation Type Main Unit Width 94mm 60W
Horizontal Type Multi-Slider

■Model

NS — SXMM — □ — 60 — □ — □ — T2 — □ — AQ — CT1 — RT

Series	Type	Encoder Type	Motor Type	Lead	Stroke	Applicable controller	Cable Length	Options
		A: Absolute I : Incremental	60: 60W	12: 12 mm	200: 200mm 〃 800: 800mm	T2: SCON SSEL XSEL-P/Q	N :No S :3m M :5m X□□:Length Specified	See the options table below

Model/Specification

Model	Encoder Type	Motor Output (W)	Lead (mm)	Stroke (mm)	Speed (mm/s)	Acceleration (Note 1)				Payload Capacity (Note 1 & 2)				Rated Thrust (N)
						Horizontal (G)		Vertical (G)		Horizontal (kg)		Vertical (kg)		
						Rated	Maximum	Rated	Maximum	Rated Acceleration	Maximum Acceleration	Rated Acceleration	Maximum Acceleration	
NS-SXMM-①-60-12-②-T2-③-AQ-④-RT	Absolute Incremental	60	12	200~800	720	0.3	0.8	Horizontal Only		15	0.5	Horizontal Only		70.8

*In the model above, ① indicates the type of encoder, ② indicates the stroke, ③ indicates the cable length, and ④ indicates the option.

Option

Name	Model	Reference page	Note
AQ Seal	AQ	→P5	Standard Equipment
Installation Direction of Standard Cable Track	CT1	→P5	CT1 for standard
Guide with Ball-Retaining Mechanism	RT	→P6	Standard Equipment

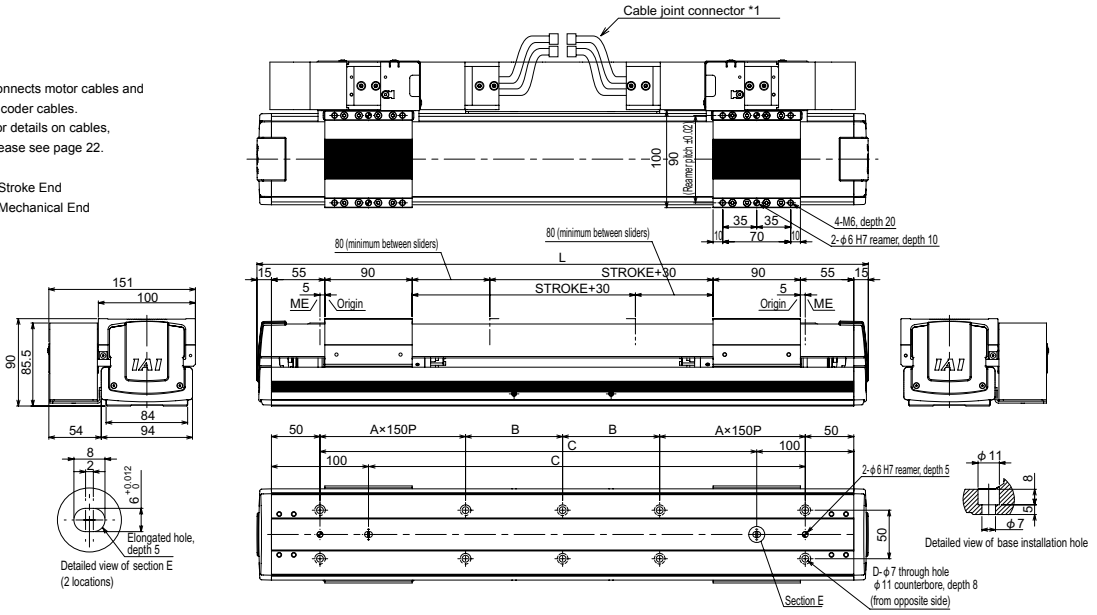
Common specifications

Driving Method	Ball Thread, Diameter φ10 mm, Equivalent to Rolled C10
Repeated Positioning Accuracy	+/- 0.02mm
Backlash	0.05mm or less
Guide	Integrated to Base
Dynamic Allowable Moment (Note 3)	Ma:28.4N·m Mb:40.2N·m Mc:65.7N·m
Overhung load length	Ma Direction: 450mm or less; Mb and Mc Direction: 450mm or less
Base	Material: Aluminium, White Alumite Treatment
Cable Length (Note 4)	N: No cable; S: 3 m; M: 5 m; X□□: Length specified
Ambient Temperature	0~40 degrees Celsius, 85% RH or less (No condensation)

Dimensional drawing

*1 Connects motor cables and encoder cables.
For details on cables, please see page 22.

SE: Stroke End
ME: Mechanical End



*For the internal dimensions of the cable track, please see page 6.

Stroke	200	300	400	500	600	700	800
L	630	730	830	930	1030	1130	1230
A	1	1	1	2	2	2	2
B	100	150	200	100	150	200	100
C	450	550	650	750	850	950	1050
D	10	10	10	14	14	14	18
Mass (kg)	7.5	8.1	8.7	9.4	10.0	10.7	11.3

Applicable Controller Specifications

Applicable Controller	Max. Number of Axes Controlled	Compatible Encoder Type	Operation Method	Power/ Voltage
X-SEL-P/Q	6 axis	Absolute/ Incremental	Programs	Three-Phase/ Single-Phase 200VAC
SSEL	2 axis			Single-Phase 100/200VAC
SCON	1 axis		Positioner Pulse Train Control	

Note: A two-axis controller is required to operate the multi-slider.
Two controllers are required for SCON.
(Please note that SCON does not have a collision prevention mechanism)

Note

(Note 1) For the relationship between acceleration and payload capacity, see page 4.
(Note 2) The values shown are payload capacities during operation at maximum speed.
(Note 3) For a 10,000-km running life.
(Note 4) The maximum cable length is 30 m. Please specify length in meters.
(E.g., X08 = 8 m)

NS-SZMS

Single-Axis Robot Small Nut Rotation Type Main Unit Width 94mm 60W
Vertical Type Single Slider

■Model

NS — SZMS — □ — 60 — □ — □ — T2 — □ — AQ — B — □ — RT

Series	Type	Encoder Type	Motor Type	Lead	Stroke	Applicable controller	Cable Length
		A: Absolute I : Incremental	60: 60W	12: 12 mm	400: 400mm 〃 800: 800mm	T2: SCON SSEL XSEL-P/Q	N :No S :3m M:5m X□□:Length Specified

See the options table below

Model/Specification

Model	Encoder Type	Motor Output (W)	Lead (mm)	Stroke (mm)	Speed (mm/s)	Acceleration (Note 1)				Payload Capacity (Note 1 & 2)				Rated Thrust (N)
						Horizontal (G)		Vertical (G)		Horizontal (kg)		Vertical (kg)		
						Rated	Maximum	Rated	Maximum	Rated Acceleration	Maximum Acceleration	Rated Acceleration	Maximum Acceleration	
NS-SZMS-①-60-12-②-T2-③-AQ-④-RT	Absolute Incremental	60	12	400~800	600	Vertical Only		0.3	0.7	Vertical Only		3	0.5	70.8

*In the model above, ① indicates the type of encoder, ② indicates the stroke, ③ indicates the cable length, and ④ indicates the option.

Option

Name	Model	Reference page	Note
AQ Seal	AQ	→P5	Standard Equipment
Brake	B	→P5	Standard Equipment
Installation Direction of Standard Cable Track	CT1~CT4	→P5	Enter CT1 for standard installation
Guide with Ball-Retaining Mechanism	RT	→P6	Standard Equipment

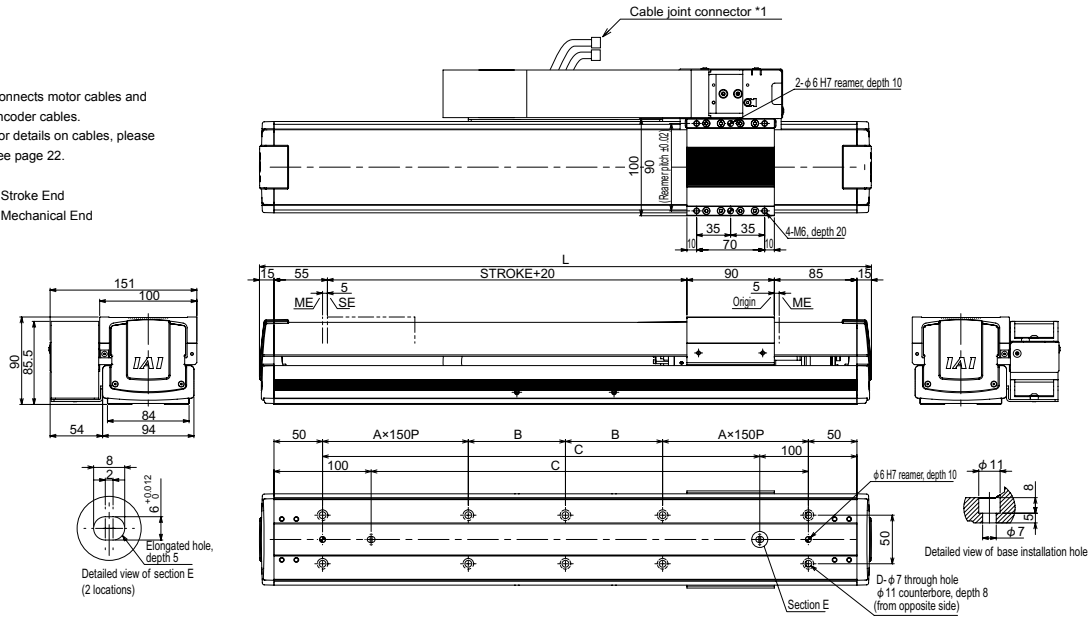
Common specifications

Driving Method	Ball Thread, Diameter φ10 mm, Equivalent to Rolled C10
Repeated Positioning Accuracy	+/- 0.02mm
Backlash	0.05mm or less
Guide	Integrated to Base
Dynamic Allowable Moment(Note 3)	Ma: 28.4 N·m, Mb: 40.2 N·m, Mc: 33.3N·m
Overhung load length	Ma Direction: 450mm or less; Mb and Mc Direction: 450mm or less
Base	Material: Aluminium, White Alumite Treatment
Cable Length (Note 4)	N: No cable; S: 3 m; M: 5 m; X□□: Length specified
Ambient Temperature	0~40 degrees Celsius, 85% RH or less (No condensation)

Dimensional drawing

*1 Connects motor cables and encoder cables.
For details on cables, please see page 22.

SE: Stroke End
ME: Mechanical End



*For the internal dimensions of the cable track, please see page 6.

Stroke	400	500	600	700	800
L	680	780	880	980	1080
A	1	1	1	2	2
B	125	175	225	125	175
C	500	600	700	800	900
D	10	10	10	14	14
Mass (kg)	6.2	6.8	7.4	8.1	8.7

Applicable Controller Specifications

Applicable Controller	Max. Number of Axes Controlled	Compatible Encoder Type	Operation Method	Power/ Voltage
X-SEL-P/Q	6 axis	Absolute/ Incremental	Programs	Three-Phase/ Single-Phase 200VAC
SSEL	2 axis			Single-Phase 100/200VAC
SCON	1 axis		Positioner Pulse Train Control	

Note

(Note 1) For the relationship between acceleration and payload capacity, see page 4.
(Note 2) The values shown are payload capacities during operation at maximum speed.
(Note 3) For a 10,000-km running life.
(Note 4) The maximum cable length is 30 m. Please specify length in meters.
(E.g., X08 = 8 m)

NS-SZMM

Single-Axis Robot Small Nut Rotation Type Main Unit Width 94mm 60W
Vertical Type Mult-Slider

■Model

NS — SZMM — ☐ — 60 — ☐ — ☐ — T2 — ☐ — AQ — B — CT1 — RT

Series	Type	Encoder Type	Motor Type	Lead	Stroke	Applicable controller	Cable Length	
		A: Absolute I : Incremental	60: 60W	12: 12 mm	200: 200mm ↓ 800: 800mm	T2: SCON SSEL XSEL-P/Q	N :No S :3m M:5m X☐☐:Length Specified	See the options table below

Model/Specification

Model	Encoder Type	Motor Output (W)	Lead (mm)	Stroke (mm)	Speed (mm/s)	Acceleration (Note 1)				Payload Capacity (Note 1 & 2)				Rated Thrust (N)
						Horizontal (G)		Vertical (G)		Horizontal (kg)		Vertical (kg)		
						Rated	Maximum	Rated	Maximum	Rated Acceleration	Maximum Acceleration	Rated Acceleration	Maximum Acceleration	
NS-SZMM-①-60-12-②-T2-③-AQ-④-RT	Absolute Incremental	60	12	200~800	600	Vertical Only	0.3	0.7	Vertical Only	3	0.5			70.8

*In the model above, ① indicates the type of encoder, ② indicates the stroke, ③ indicates the cable length, and ④ indicates the option.

Option

Name	Model	Reference page	Note
AQ Seal	AQ	→P5	Standard Equipment
Brake	B	→P5	Standard Equipment
Installation Direction of Standard Cable Track	CT1	→P5	CT1 for standard
Guide with Ball-Retaining Mechanism	RT	→P6	Standard Equipment

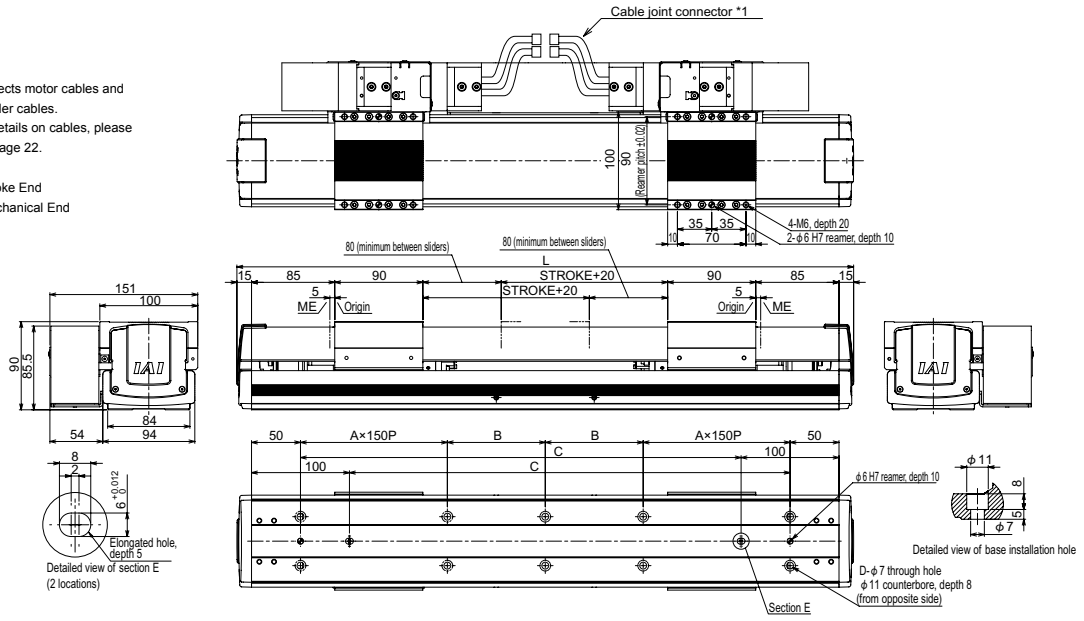
Common specifications

Driving Method	Ball Thread, Diameter φ10 mm, Equivalent to Rolled C10
Repeated Positioning Accuracy	+/- 0.02mm
Backlash	0.05mm or less
Guide	Integrated to Base
Dynamic Allowable Moment(Note 3)	Ma: 28.4 N·m, Mb: 40.2 N·m, Mc: 33.3N·m
Overhung load length	Ma Direction: 450mm or less; Mb and Mc Direction: 450mm or less-
Base	Material: Aluminium, White Alumite Treatment
Cable Length (Note 4)	N: No cable; S: 3 m; M: 5 m; X☐☐: Length specified
Ambient Temperature	0~40 degrees Celsius, 85% RH or less (No condensation)

Dimensional drawing

*1 Connects motor cables and encoder cables.
For details on cables, please see page 22.

SE: Stroke End
ME: Mechanical End



*For the internal dimensions of the cable track, please see page 6.

Stroke	200	300	400	500	600	700	800
L	680	780	880	980	1080	1180	1280
A	1	1	1	2	2	2	3
B	125	175	225	125	175	225	125
C	500	600	700	800	900	1000	1100
D	10	10	10	14	14	14	18
Mass (kg)	7.7	8.4	9.0	9.7	10.3	10.9	11.6

Applicable Controller Specifications

Applicable Controller	Max. Number of Axes Controlled	Compatible Encoder Type	Operation Method	Power/ Voltage
X-SEL-P/Q	6 axis	Absolute/ Incremental	Programs	Three-Phase/ Single-Phase 200VAC
SSEL	2 axis			Single-Phase 100/200VAC
SCON	1 axis		Positioner Pulse Train Control	

Note: A two-axis controller is required to operate the multi-slider.
Two controllers are required for SCON.
(Please note that SCON does not have a collision prevention mechanism)

Note

(Note 1) For the relationship between acceleration and payload capacity, see page 4.
(Note 2) The values shown are payload capacities during operation at maximum speed.
(Note 3) For a 10,000-km running life.
(Note 4) The maximum cable length is 30 m. Please specify length in meters.
(E.g., X08 = 8 m)

NS-MXMS

Single-Axis Robot Medium Nut Rotation Type Main Unit Width 125mm 200W
Horizontal Type Single Slider

■Model

NS — MXMS — ☐ — 200 — ☐ — ☐ — T2 — ☐ — AQ — ☐ — RT

Series	Type	Encoder Type	Motor Type	Lead	Stroke	Applicable controller	Cable Length	Option
		A: Absolute I : Incremental	200: 200W	30: 30mm 20: 20 mm	500: 500mm 〃 1500: 1,500mm	T2: SCON SSEL XSEL-P/Q	N :No S :3m M:5m X☐☐:Length Specified	See the options table below

Model/Specification

Model	Encoder Type	Motor Output (W)	Lead (mm)	Stroke (mm)	Speed (mm/s)	Acceleration (Note 1)				Payload capacity (Note 1 & 2)				Rated Thrust (N)
						Horizontal (G)		Vertical (G)		Horizontal (kg)		Vertical (kg)		
						Rated	Maximum	Rated	Maximum	Rated Acceleration	Maximum Acceleration	Rated Acceleration	Maximum Acceleration	
NS-MXMS-①-200-30-②-T2-③-AQ-④-RT	Absolute Incremental	200	30	500~1500	1800	0.3	1.0	Horizontal Only		25	0.5	Horizontal Only		113.9
NS-MXMS-①-200-20-②-T2-③-AQ-④-RT			20		1200	0.3	0.8			40	2.5			170.9

*In the model above, ① indicates the type of encoder, ② indicates the stroke, ③ indicates the cable length, and ④ indicates the option.

Option

Name	Model	Reference page	Note
AQ Seal	AQ	→P5	Standard Equipment
Installation Direction of Standard Cable Track	CT1~CT4	→P5	Enter CT1 for standard installation
Guide with Ball-Retaining Mechanism	RT	→P6	Standard Equipment

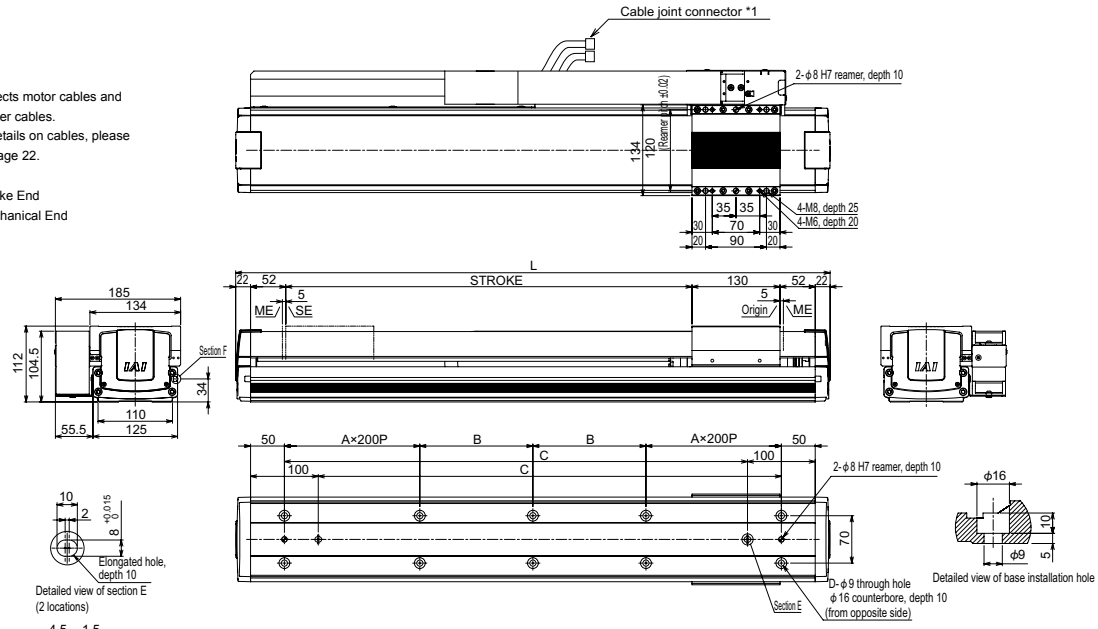
Common specifications

Driving Method	Ball Thread, Diameter φ16 mm, Equivalent to Rolled C5
Repeated Positioning Accuracy	+/- 0.01 mm
Backlash	0.02 mm or less
Guide	Integrated to Base
Dynamic Allowable Moment(Note 3)	Ma: 69.6N·m, Mb: 99.0N·m, Mc: 161.7N·m
Overhung load length	Ma Direction: 600mm or less; Mb and Mc Direction: 600mm or less
Base	Material: Aluminium, White Alumite Treatment
Cable Length (Note 4)	N: No cable; S: 3 m; M: 5 m; X☐☐: Length specified
Ambient Temperature	0~40 degrees Celsius, 85% RH or less (No condensation)

Dimensional drawing

*1 Connects motor cables and encoder cables.
For details on cables, please see page 22.

SE: Stroke End
ME: Mechanical End



Detailed view of section F (T-slot in base)

*For the internal dimensions of the cable track, please see page 6.

Stroke	500	600	700	800	900	1000	1100	1200	1300	1400	1500
L	778	878	978	1078	1178	1278	1378	1478	1578	1678	1778
A	0	1	1	1	1	2	2	2	2	3	3
B	317	167	217	267	317	167	217	267	317	167	217
C	584	684	784	884	984	1084	1184	1284	1384	1484	1584
D	6	10	10	10	10	14	14	14	14	18	18
Mass (kg)	11.9	13.1	14.4	15.6	16.8	18.0	19.3	20.5	21.7	23.0	24.2

Applicable Controller Specifications

Applicable Controller	Max. Number of Axes Controlled	Compatible Encoder Type	Operation Method	Power/ Voltage
X-SEL-P/Q	6 axis	Absolute/ Incremental	Programs	Three-Phase/ Single-Phase 200V AC
SSEL	2 axis			Single-Phase 100/200VAC
SCON	1 axis		Positioner Pulse Train Control	

Note

(Note 1) For the relationship between acceleration and payload capacity, see page 4.
(Note 2) The values shown are payload capacities during operation at maximum speed.
(Note 3) For a 10,000-km running life.
(Note 4) The maximum cable length is 30 m. Please specify length in meters. (E.g., X08 = 8 m)
(Note 5) When an axis with a long stroke (1,300 mm or more) is used hanging from the ceiling, the cover of the body may hang down and contact the slider. Therefore, in cases of such use, please contact our sales representative in advance.

NS-MXMM

Single-Axis Robot Medium Nut Rotation Type Main Unit Width 125mm 200W
Horizontal Type Multi-Slider

■Model

NS — MXMM — □ — 200 — □ — □ — T2 — □ — AQ — CT1 — RT

Series	Type	Encoder Type	Motor Type	Lead	Stroke	Applicable controller	Cable Length	Option
		A: Absolute I : Incremental	200: 200W	30: 30mm 20: 20 mm	300: 300mm 〃 1500: 1,500mm	T2: SCON SSEL XSEL-P/Q	N :No S :3m M :5m X□□:Length Specified	See the options table below

Model/Specification

Model	Encoder Type	Motor Output (W)	Lead (mm)	Stroke (mm)	Speed (mm/s)	Acceleration (Note 1)				Payload capacity (Note 1 & 2)				Rated Thrust (N)
						Horizontal (G)		Vertical (G)		Horizontal (kg0		Vertica (kg)		
						Rated	Maximum	Rated	Maximum	Rated Acceleration	Maximum Acceleration	Rated Acceleration	Maximum Acceleration	
NS-MXMM-①-200-30-②-T2-③-AQ-④-RT	Absolute	200	30	300~1500	1800	0.3	1.0	Horizontal Only		25	0.5	Horizontal Only		113.9
NS-MXMM-①-200-20-②-T2-③-AQ-④-RT	Incremental		20		1200	0.3	0.8			40	2.5			170.9

*In the model above, ① indicates the type of encoder, ② indicates the stroke, ③ indicates the cable length, and ④ indicates the option.

Option

Name	Model	Reference page	Note
AQ Seal	AQ	→P5	Standard Equipment
Installation Direction of Standard Cable Track	CT1	→P5	CT1 for standard
Guide with Ball-Retaining Mechanism	RT	→P6	Standard Equipment

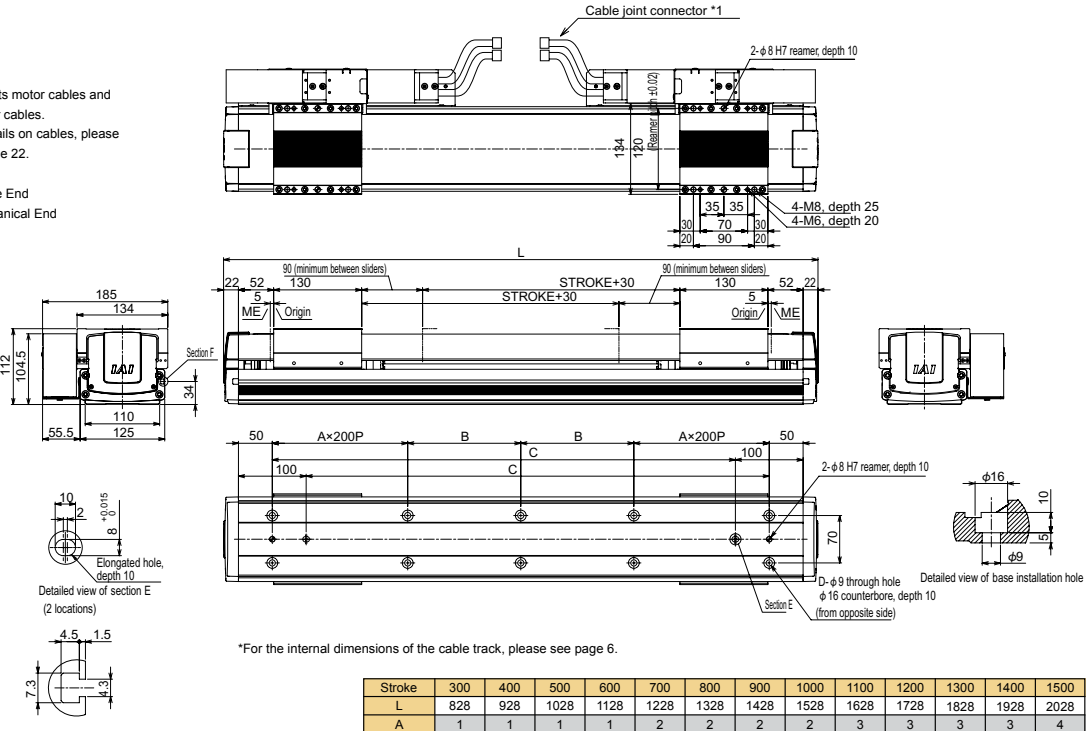
Common specifications

Driving Method	Ball Thread, Diameter φ16 mm, Equivalent to Rolled C5
Repeated Positioning Accuracy	+/- 0.01 mm
Backlash	0.02 mm or less
Guide	Integrated to Base
Dynamic Allowable Moment (Note 3)	Ma: 69.6N·m, Mb: 99.0N·m, Mc: 161.7N·m
Overhung load length	Ma Direction: 600mm or less; Mb and Mc Direction: 600mm or less
Base	Material: Aluminium, White Alumite Treatment
Cable Length (Note 4)	N: No cable; S: 3 m; M: 5 m; X□□: Length specified
Ambient Temperature	0~40 degrees Celsius, 85% RH or less (No condensation)

Dimensional drawing

*1 Connects motor cables and encoder cables.
For details on cables, please see page 22.

SE: Stroke End
ME: Mechanical End



*For the internal dimensions of the cable track, please see page 6.

Stroke	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500
L	828	928	1028	1128	1228	1328	1428	1528	1628	1728	1828	1928	2028
A	1	1	1	1	2	2	2	2	3	3	3	3	4
B	142	192	242	292	142	192	242	292	142	192	242	292	142
C	634	734	834	934	1034	1134	1234	1334	1434	1534	1634	1734	1834
D	10	10	10	10	14	14	14	14	18	18	18	18	22
Mass (kg)	15.6	16.8	18	19.2	20.5	21.7	22.9	24.2	25.4	26.6	27.9	29.1	30.3

Applicable Controller Specifications

Applicable Controller	Max. Number of Axes Controlled	Compatible Encoder Type	Operation Method	Power/ Voltage
X-SEL-P/Q	6 axis	Absolute/ Incremental	Programs	Three-Phase/ Single-Phase 200VAC
SSEL	2 axis			Single-Phase 100/200VAC
SCON	1 axis		Positioner Pulse Train Control	

Note: A two-axis controller is required to operate the multi-slider.
Two controllers are required for SCON.
(Please note that SCON does not have a collision prevention mechanism)

Note

(Note 1) For the relationship between acceleration and payload capacity, see page 4.
(Note 2) The values shown are payload capacities during operation at maximum speed.
(Note 3) For a 10,000-km running life.
(Note 4) The maximum cable length is 30 m. Please specify length in meters. (E.g., X08 = 8 m)
(Note 5) When an axis with a long stroke (1,300 mm or more) is used hanging from the ceiling, the cover of the body may hang down and contact the slider. Therefore, in cases of such use, please contact our sales representative in advance.

NS-MXMXS

Single-Axis Robot Medium Nut Rotation Type Main Unit Width 125mm 200W
Horizontal Type With Mid-Support Single Slider

■Model

NS — MXMXS — ☐ — 200 — ☐ — ☐ — T2 — ☐ — AQ — ☐ — RT

Series	Type	Encoder Type	Motor Type	Lead	Stroke	Applicable controller	Cable Length	Option
		A: Absolute I: Incremental	200: 200W	30: 30mm 20: 20 mm	1600: 1,600mm 〃 2200: 2,200mm	T2: SCON SSEL XSEL-P/Q	N: No S: 3m M: 5m X☐☐: Length Specified	See the options table below

Model/Specification

Model	Encoder Type	Motor Output (W)	Lead (mm)	Stroke (mm)	Speed (mm/s)	Acceleration (Note 1)				Payload capacity (Note 1 & 2)				Rated Thrust (N)
						Horizontal (G)		Vertical (G)		Horizontal (kg)		Vertical (kg)		
						Rated	Maximum	Rated	Maximum	Rated Acceleration	Maximum Acceleration	Rated Acceleration	Maximum Acceleration	
NS-MXMXS-①-200-30-②-T2-③-AQ-④-RT	Absolute Incremental	200	30	1600~2200	1800	0.3		Horizontal Only		25		Horizontal Only		113.9
			20		1200	0.3				40				170.9

*In the model above, ① indicates the type of encoder, ② indicates the stroke, ③ indicates the cable length, and ④ indicates the option.

Option

Name	Model	Reference page	Note
AQ Seal	AQ	→P5	Standard Equipment
Installation Direction of Standard Cable Track	CT1~CT4	→P5	Enter CT1 for standard installation
Guide with Ball-Retaining Mechanism	RT	→P6	Standard Equipment

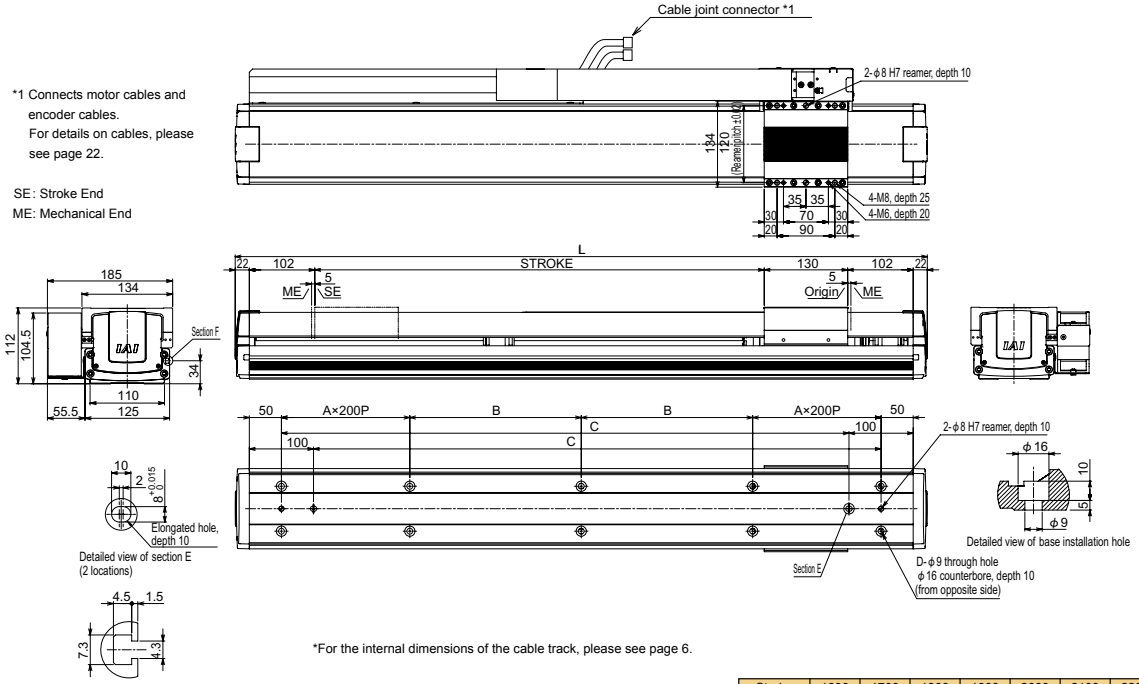
Common specifications

Driving Method	Ball Thread, Diameter φ16 mm, Equivalent to Rolled C5
Repeated Positioning Accuracy	+/- 0.01 mm
Backlash	0.02 mm or less
Guide	Integrated to Base
Dynamic Allowable Moment (Note 3)	Ma: 69.6N·m, Mb: 99.0N·m, Mc: 161.7N·m
Overhung load length	Ma Direction: 600mm or less; Mb and Mc Direction: 600mm or less
Base	Material: Aluminium, White Alumite Treatment
Cable Length (Note 4)	N: No cable; S: 3 m; M: 5 m; X☐☐: Length specified
Ambient Temperature	0~40 degrees Celsius, 85% RH or less (No condensation)

Dimensional drawing

*1 Connects motor cables and encoder cables.
For details on cables, please see page 22.

SE: Stroke End
ME: Mechanical End



*For the internal dimensions of the cable track, please see page 6.

Stroke	1600	1700	1800	1900	2000	2100	2200
L	1978	2078	2178	2278	2378	2478	2578
A	3	4	4	4	4	5	5
B	317	167	217	267	317	167	217
C	1784	1884	1984	2084	2184	2284	2384
D	18	22	22	22	22	26	26
Mass (kg)	26.2	27.5	28.7	29.9	31.2	32.4	33.6

Note: Due to their structure, models with a mid-support cannot be positioned horizontally on their side or vertically.

Applicable Controller Specifications

Applicable Controller	Max. Number of Axes Controlled	Compatible Encoder Type	Operation Method	Power/ Voltage
X-SEL-P/Q	6 axis	Absolute/ Incremental	Programs	Three-Phase/ Single-Phase 200VAC
SSEL	2 axis			Single-Phase 100/200VAC
SCON	1 axis		Positioner Pulse Train Control	

Note

(Note 1) The maximum acceleration is 0.3 G.
(Note 2) The values shown are payload capacities during operation at maximum speed.
(Note 3) For a 10,000-km running life.
(Note 4) The maximum cable length is 30 m. Please specify length in meters. (E.g., X08 = 8 m)
(Note 5) When an axis with a long stroke (1,300 mm or more) is used hanging from the ceiling, the cover of the body may hang down and contact the slider. Therefore, in cases of such use, please contact our sales representative in advance.

NS-MZMS

Single-Axis Robot Medium Nut Rotation Type Main Unit Width 125mm 200W
Vertical Type Single Slider

■Model

NS — MZMS — ☐ — 200 — ☐ — ☐ — T2 — ☐ — AQ — B ☐ — RT

Series	Type	Encoder Type	Motor Type	Lead	Stroke	Applicable controller	Cable Length	
		A: Absolute I : Incremental	200: 200W	20: 20 mm	500: 500mm ↓ 800: 800mm	T2: SCON SSEL XSEL-P/Q	N :No S :3m M:5m X☐☐:Length Specified	See the options table below

Model/Specification

Model	Encoder Type	Motor Output (W)	Lead (mm)	Stroke (mm)	Speed (mm/s)	Acceleration (Note 1)				Payload capacity (Note 1 & 2)				Rated Thrust (N)
						Horizontal (G)		Vertical (G)		Horizontal (kg)		Vertical (kg)		
						Rated	Maximum	Rated	Maximum	Rated Acceleration	Maximum Acceleration	Rated Acceleration	Maximum Acceleration	
NS-MZMS-①-200-20-②-T2-③-AQ-④-RT	Absolute Incremental	200	20	500~800	1000	Vertical Only	0.3	0.5	Vertical Only	6	3	170.9		

*In the model above, ① indicates the type of encoder, ② indicates the stroke, ③ indicates the cable length, and ④ indicates the option.

Option

Name	Model	Reference page	Note
AQ Seal	AQ	→P5	Standard Equipment
Brake (*)	B	→P5	Standard Equipment
Installation Direction of Standard Cable Track	CT1~CT4	→P5	Enter CT1 for standard installation
Guide with Ball-Retaining Mechanism	RT	→P6	Standard Equipment

(*) A brake box is attached for powering the brake.
(For details, see page 21)

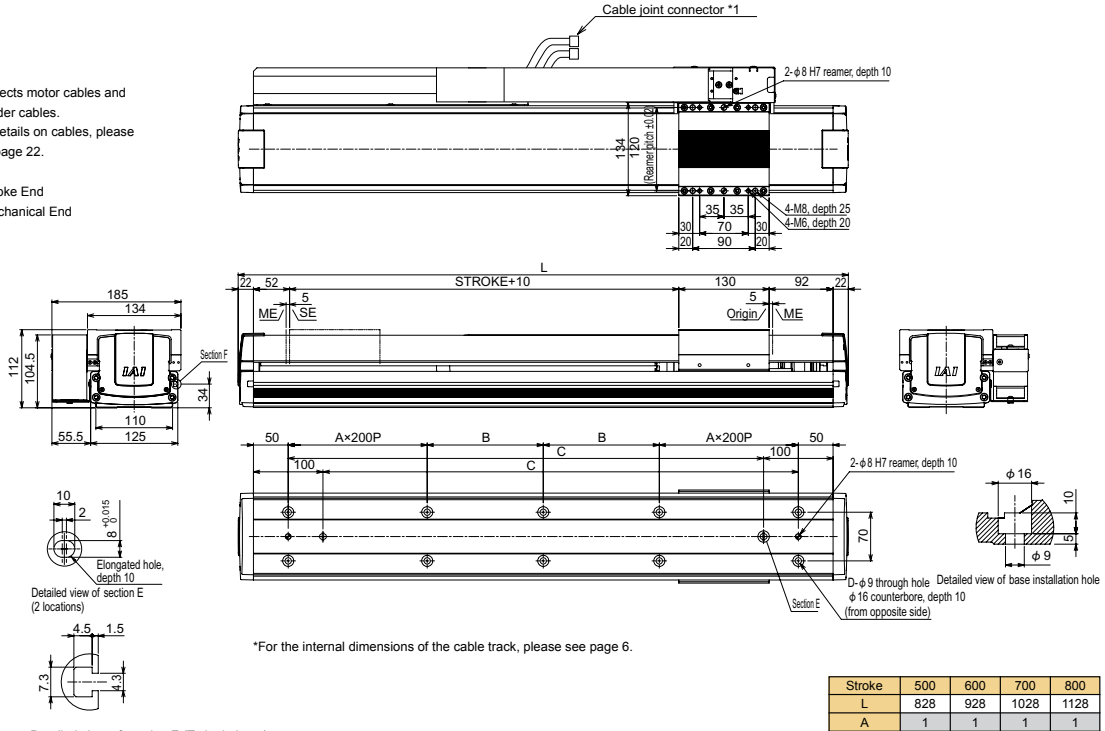
Common specifications

Driving Method	Ball Thread, Diameter φ16 mm, Equivalent to Rolled C5
Repeated Positioning Accuracy	+/- 0.01 mm
Backlash	0.02 mm or less
Guide	Integrated to Base
Dynamic Allowable Moment (Note 3)	Ma: 69.6N·m, Mb: 99.0N·m, Mc: 81.3N·m
Overhung load length	Ma Direction: 600mm or less; Mb and Mc Direction: 600mm or less
Base	Material: Aluminium, White Alumite Treatment
Cable Length (Note 4)	N: No cable; S: 3 m; M: 5 m; X☐☐: Length specified
Ambient Temperature	0~40 degrees Celsius, 85% RH or less (No condensation)

Dimensional drawing

*1 Connects motor cables and encoder cables.
For details on cables, please see page 22.

SE: Stroke End
ME: Mechanical End



*For the internal dimensions of the cable track, please see page 6.

Stroke	500	600	700	800
L	828	928	1028	1128
A	1	1	1	1
B	142	192	242	292
C	634	734	834	934
D	10	10	10	10
Mass (kg)	13.5	14.8	16.0	17.2

Applicable Controller Specifications

Applicable Controller	Max. Number of Axes Controlled	Compatible Encoder Type	Operation Method	Power/ Voltage
X-SEL-P/Q	6 axis	Absolute/ Incremental	Programs	Three-Phase/ Single-Phase 200VAC
SSEL	2 axis			Single-Phase 100/200VAC
SCON	1 axis		Positioner Pulse Train Control	

Note

(Note 1) For the relationship between acceleration and payload capacity, see page 4.
(Note 2) The values shown are payload capacities during operation at maximum speed.
(Note 3) For a 10,000-km running life.
(Note 4) The maximum cable length is 30 m. Please specify length in meters.
(E.g., X08 = 8 m)

NS-MZMM

Single-Axis Robot Medium Nut Rotation Type Main Unit Width 125mm 200W
Vertical Type Multi-Slider

■Model

NS — MZMM — □ — 200 — □ — □ — T2 — □ — AQ — B — CT1 — RT

Series	Type	Encoder Type	Motor Type	Lead	Stroke	Applicable controller	Cable Length	
		A: Absolute I : Incremental	200: 200W	20: 20 mm	300: 300mm ↓ 800: 800mm	T2: SCON SSEL XSEL-P/Q	N :No S :3m M:5m X□□:Length Specified	See the options table below

Model/Specification

Model	Encoder Type	Motor Output (W)	Lead (mm)	Stroke (mm)	Speed (mm/s)	Acceleration (Note 1)				Payload capacity (Note 1 & 2)				Rated Thrust (N)
						Horizontal (G)		Vertical (G)		Horizontal (kg)		Vertical (kg)		
						Rated	Maximum	Rated	Maximum	Rated Acceleration	Maximum Acceleration	Rated Acceleration	Maximum Acceleration	
NS-MZMM-①-200-20-②-T2-③-AQ-④-RT	Absolute Incremental	200	20	300~800	1000	Vertical Only		0.3	0.5	Vertical Only		6	3	170.9

*In the model above, ① indicates the type of encoder, ② indicates the stroke, ③ indicates the cable length, and ④ indicates the option.

Option

Name	Model	Reference page	Note
AQ Seal	AQ	→P5	Standard Equipment
Brake (*)	B	→P5	Standard Equipment
Installation Direction of Standard Cable Track	CT1	→P5	CT1 for standard
Guide with Ball-Retaining Mechanism	RT	→P6	Standard Equipment

(*) A brake box is attached for powering the brake.
(For details, see page 21)

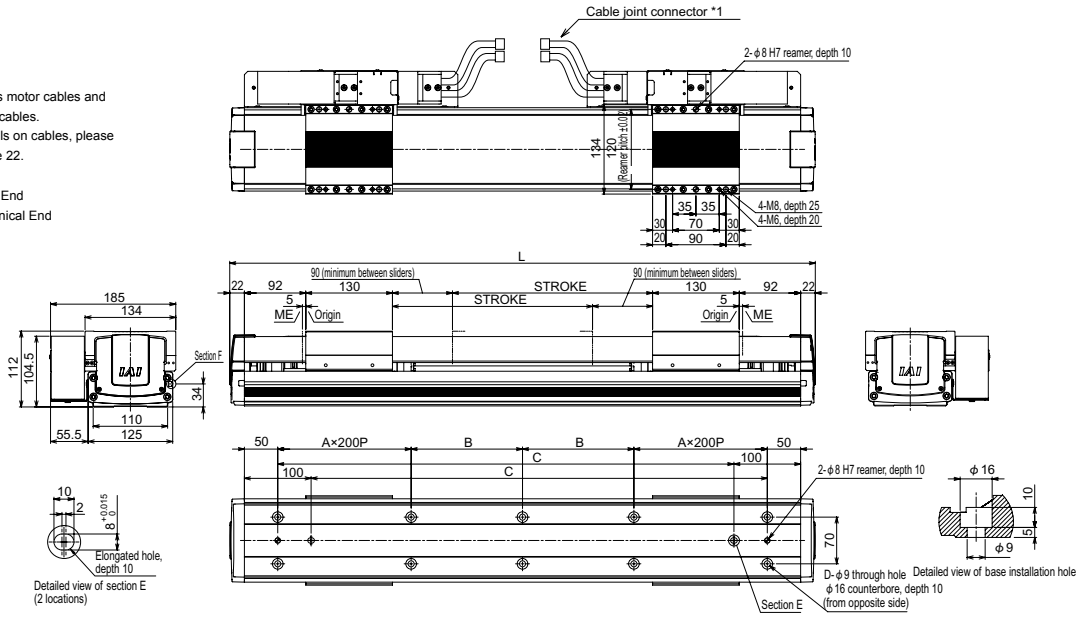
Common specifications

Driving Method	Ball Thread, Diameter φ16 mm, Equivalent to Rolled C5
Repeated Positioning Accuracy	+/- 0.01 mm
Backlash	0.02 mm or less
Guide	Integrated to Base
Dynamic Allowable Moment (Note 3)	Ma: 69.6N·m, Mb: 99.0N·m, Mc: 81.3N·m
Overhung load length	Ma Direction: 600mm or less; Mb and Mc Direction: 600mm or less
Base	Material: Aluminium, White Alumite Treatment
Cable Length (Note 4)	N: No cable; S: 3 m; M: 5 m; X□□: Length specified
Ambient Temperature	0~40 degrees Celsius, 85% RH or less (No condensation)

Dimensional drawing

*1 Connects motor cables and encoder cables.
For details on cables, please see page 22.

SE: Stroke End
ME: Mechanical End



*For the internal dimensions of the cable track, please see page 6.

Stroke	300	400	500	600	700	800
L	878	978	1078	1178	1278	1378
A	1	1	1	1	2	2
B	167	217	267	317	167	217
C	684	784	884	984	1084	1184
D	10	10	10	10	14	14
Mass (kg)	17.2	18.4	19.7	20.9	22.1	23.4

Applicable Controller Specifications

Applicable Controller	Max. Number of Axes Controlled	Compatible Encoder Type	Operation Method	Power/ Voltage
X-SEL-P/Q	6 axis	Absolute/ Incremental	Programs	Three-Phase/ Single-Phase 200VAC
SSEL	2 axis			Single-Phase 100/200VAC
SCON	1 axis		Positioner Pulse Train Control	

Note: A two-axis controller is required to operate the multi-slider.
Two controllers are required for SCON.
(Please note that SCON does not have a collision prevention mechanism)

Note

(Note 1) For the relationship between acceleration and payload capacity, see page 4.
(Note 2) The values shown are payload capacities during operation at maximum speed.
(Note 3) For a 10,000-km running life.
(Note 4) The maximum cable length is 30 m. Please specify length in meters.
(E.g., X08 = 8 m)

NS-LXMS

Single-Axis Robot Large Nut Rotation Type Main Unit Width 145mm 400W
Horizontal Type Single Slider

■Model

NS — LXMS — □ — 400 — □ — □ — T2 — □ — AQ — □ — RT

Series	Type	Encoder Type	Motor Type	Lead	Stroke	Applicable controller	Cable Length	Option
		A: Absolute I : Incremental	400: 400W	40: 40mm 20: 20 mm	500: 500mm 〃 2200: 2,200mm	T2: SCON SSEL XSEL-P/Q	N :No S :3m M:5m X□□:Length Specified	See the options table below

Model/Specification

Model	Encoder Type	Motor Output (W)	Lead (mm)	Stroke (mm)	Speed (mm/s)	Acceleration (Note 1)		Payload capacity (Note 1 & 2)				Rated Thrust (N)
						Horizontal (G)		Vertical (G)		Horizontal (kg)		Vertical (kg)		
						Rated	Maximum	Rated	Maximum	Rated Acceleration	Maximum Acceleration	Rated Acceleration	Maximum Acceleration	
NS-LXMS-①-400-40-②-T2-③-AQ-④-RT	Absolute Incremental	400	40	500~2200	2400	0.3	1.0	Horizontal Only		40	10	Horizontal Only		170
NS-LXMS-①-400-20-②-T2-③-AQ-④-RT			20		1300	0.3	1.0			80	24			340.1

*In the model above, ① indicates the type of encoder, ② indicates the stroke, ③ indicates the cable length, and ④ indicates the option.

Option

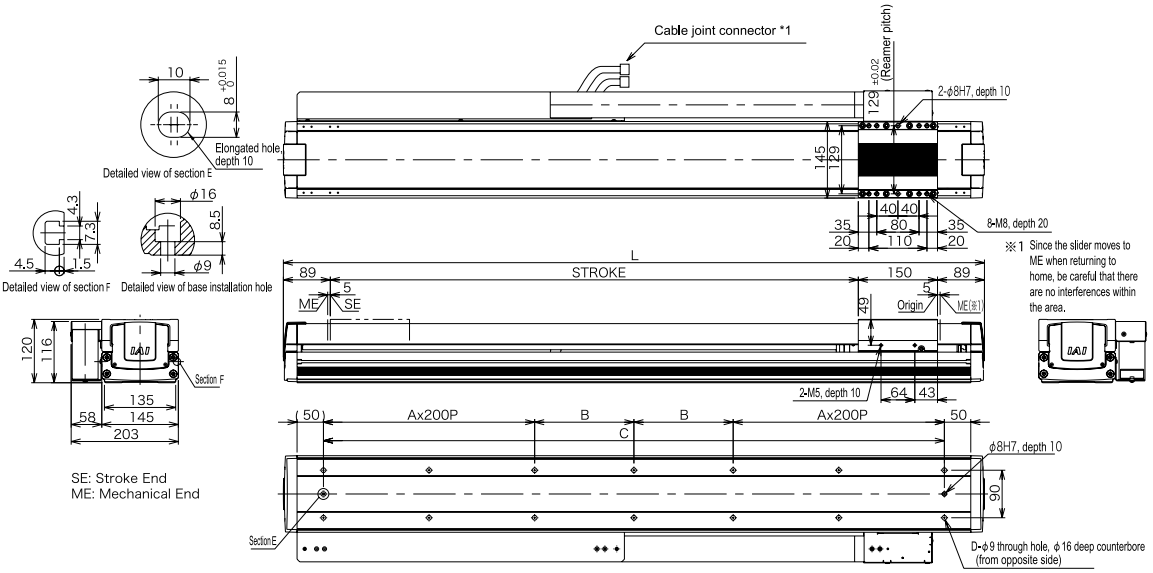
Name	Model	Reference page	Note
AQ Seal	AQ	→P5	Standard Equipment
Creep Sensor	C	→P5	
Installation Direction of Standard Cable Track	CT1~CT4	→P5	Enter CT1 for standard installation
Installation Direction of Extended Cable Track	ET1~ET4	→P5	
Limit Switch	L	→P6	
Guide with Ball-Retaining Mechanism	RT	→P6	Standard Equipment

Common specifications

Driving Method	Ball Thread, Diameter φ20 mm, Equivalent to Rolled C5
Repeated Positioning Accuracy	+/- 0.01 mm
Backlash	0.02 mm or less
Guide	Integrated to Base
Dynamic Allowable Moment (Note 3)	Ma: 104.9N·m, Mb: 149.9N·m, Mc: 248.9N·m
Overhung load length	Ma Direction: 750 mm or less; Mb and Mc Direction: 750 mm or less
Base	Material: Aluminium, White Alumite Treatment
Cable Length (Note 4)	N: No cable; S: 3 m; M: 5 m; X□□: Length specified
Ambient Temperature	0~40 degrees Celsius, 85% RH or less (No condensation)

Dimensional drawing

*1 Connects motor cables and encoder cables.
For details on cables, please see page 22.



*For the internal dimensions of the cable track, please see page 6.

Stroke	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200
L	828	928	1028	1128	1228	1328	1428	1528	1628	1728	1828	1928	2028	2128	2228	2328	2428	2528
A	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5
B	138	188	238	288	138	188	238	288	138	188	238	288	138	188	238	288	138	188
C	676	776	876	976	1076	1176	1276	1376	1476	1576	1676	1776	1876	1976	2076	2176	2276	2376
D	10	10	10	10	14	14	14	14	18	18	18	18	22	22	22	22	26	26
Mass (kg)	18.6	20.1	21.6	23.1	24.5	26.0	27.5	29.0	30.5	32.0	33.5	35.0	36.5	38.0	39.5	41.0	42.5	43.9

Applicable Controller Specifications

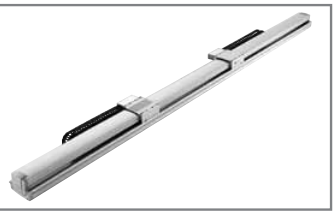
Applicable Controller	Max. Number of Axes Controlled	Compatible Encoder Type	Operation Method	Power/ Voltage
X-SEL-P/Q	6 axis	Absolute/ Incremental	Programs	Three-Phase/ Single-Phase 200VAC
SSEL	2 axis			Single-Phase 100/200VAC
SCON	1 axis		Positioner/Pulse Train Control	

Note

(Note 1) For the relationship between acceleration and payload capacity, see page 4.
(Note 2) The values shown are payload capacities during operation at maximum speed.
(Note 3) For a 10,000-km running life.
(Note 4) The maximum cable length is 30 m. Please specify length in meters. (E.g., X08 = 8 m)
(Note 5) When an axis with a long stroke (1,300 mm or more) is used hanging from the ceiling, the cover of the body may hang down and contact the slider. Therefore, in cases of such use, please contact our sales representative in advance.

NS-LXMM

Single-Axis Robot Large Nut Rotation Type Main Unit Width 145mm 400W
Horizontal Type Multi-Slider



■Model

NS— LXMM — ☐ — 400 — ☐ — ☐ — T2 — ☐ — AQ — ☐ — RT

Series	Type	Encoder Type	Motor Type	Lead	Stroke	Applicable controller	Cable Length	Option
		A: Absolute I : Incremental	400: 400W	40: 40mm 20: 20 mm	250: 250mm 〃 2250: 2,250mm	T2: SCON SSEL XSEL-P/Q	N :No S :3m M:5m X☐☐:Length Specified	See the options table below

Model/Specification

Model	Encoder Type	Motor Output (W)	Lead (mm)	Stroke (mm)	Speed (mm/s)	Acceleration (Note 1)				Payload capacity (Note 1 & 2)				Rated Thrust (N)
						Horizontal (G)		Vertical (G)		Horizontal (kg)		Vertical (kg)		
						Rated	Maximum	Rated	Maximum	Rated Acceleration	Maximum Acceleration	Rated Acceleration	Maximum Acceleration	
NS-LXMM-①-400-40-②-T2-③-AQ-④-RT	Absolute Incremental	400	40	250~2250	2400	0.3	1.0	Horizontal Only		40	10	Horizontal Only		170
NS-LXMM-①-400-20-②-T2-③-AQ-④-RT			20		1300	0.3	1.0			80	24			340.1

*In the model above, ① indicates the type of encoder, ② indicates the stroke, ③ indicates the cable length, and ④ indicates the option.

Option

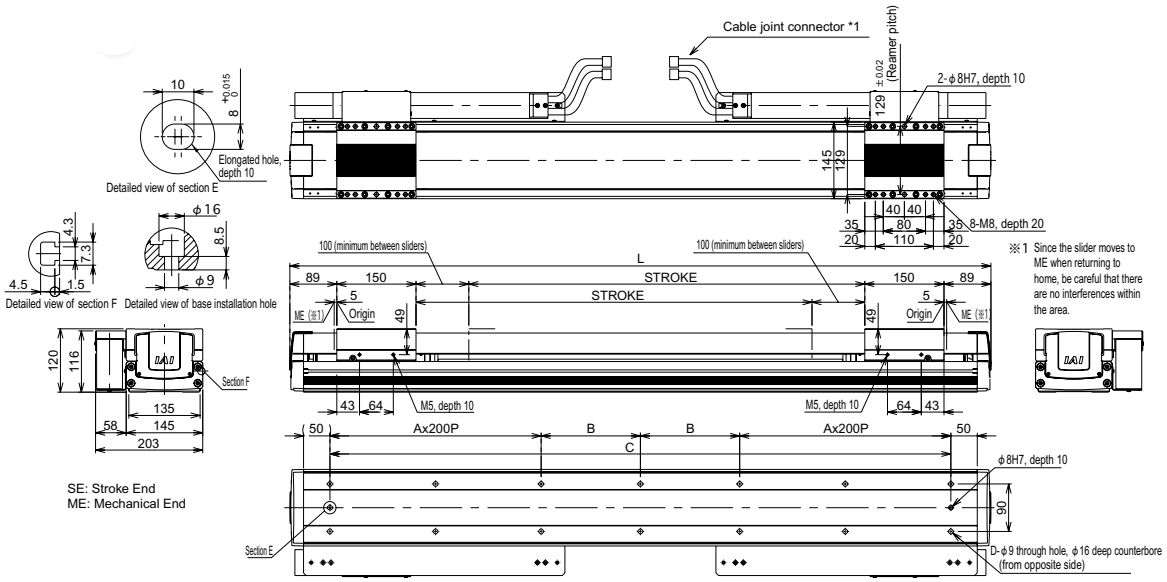
Name	Model	Reference page	Note
AQ Seal	AQ	→P5	Standard Equipment
Creep Sensor	C	→P5	
Standard/Extended Cable Track Selection	CT1/ET1	→P5	Enter CT1 for Standard Cable Track
Limit Switch	L	→P6	
Guide with Ball-Retaining Mechanism	RT	→P6	Standard Equipment

Common specifications

Driving Method	Ball Thread, Diameter φ20 mm, Equivalent to Rolled C5
Repeated Positioning Accuracy	+/- 0.01 mm
Backlash	0.02 mm or less
Guide	Integrated to Base
Dynamic Allowable Moment (Note 3)	Ma: 104.9N·m, Mb: 149.9N·m, Mc: 248.9N·m
Overhung load length	Ma Direction: 750 mm or less; Mb and Mc Direction: 750 mm or less
Base	Material: Aluminium, White Alumite Treatment
Cable Length (Note 4)	N: No cable; S: 3 m; M: 5 m; X☐☐: Length specified
Ambient Temperature	0~40 degrees Celsius, 85% RH or less (No condensation)

Dimensional drawing

*1 Connects motor cables and encoder cables.
For details on cables, please see page 22.



SE: Stroke End
ME: Mechanical End

*For the internal dimensions of the cable track, please see page 6.

Stroke	250	350	450	550	650	750	850	950	1050	1150	1250	1350	1450	1550	1650	1750	1850	1950	2050	2150	2250
L	828	928	1028	1128	1228	1328	1428	1528	1628	1728	1828	1928	2028	2128	2228	2328	2428	2528	2628	2728	2828
A	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6
B	138	188	238	288	138	188	238	288	138	188	238	288	138	188	238	288	138	188	238	288	138
C	676	776	876	976	1076	1176	1276	1376	1476	1576	1676	1776	1876	1976	2076	2176	2276	2376	2476	2576	2676
D	10	10	10	10	14	14	14	14	18	18	18	18	22	22	22	22	26	26	26	26	30
Mass (kg)	24.7	26.4	28.2	29.9	31.6	33.4	35.1	36.8	38.6	40.3	42	43.8	45.5	47.2	48.9	50.7	52.4	54.1	55.9	57.6	59.3

Applicable Controller Specifications

Applicable Controller	Max. Number of Axes Controlled	Compatible Encoder Type	Operation Method	Power/ Voltage
X-SEL-P/Q	6 axis	Absolute/ Incremental	Programs	Three-Phase/ Single-Phase 200VAC
SSEL	2 axis			Single-Phase 100/200VAC
SCON	1 axis		Positioner/Pulse Train Control	

Note: A two-axis controller is required to operate the multi-slider.
Two controllers are required for SCON.
(Please note that SCON does not have a collision prevention mechanism)

Note

(Note 1) For the relationship between acceleration and payload capacity, see page 4.
(Note 2) The values shown are payload capacities during operation at maximum speed.
(Note 3) For a 10,000-km running life.
(Note 4) The maximum cable length is 30 m. Please specify length in meters.
(E.g., X08 = 8 m)
(Note 5) When an axis with a long stroke (1,300 mm or more) is used hanging from the ceiling, the cover of the body may hang down and contact the slider. Therefore, in cases of such use, please contact our sales representative in advance.

NS-LXMXS

Single-Axis Robot Large Nut Rotation Type Main Unit Width 145mm 400W
Horizontal Type With Mid-Support Single Slider

■Model

NS— LXMXS— □ — 400 — □ — □ — T2 — □ — AQ — □ — RT

Series	Type	Encoder Type	Motor Type	Lead	Stroke	Applicable controller	Cable Length	Option
		A: Absolute I : Incremental	400: 400W	40: 40mm 20: 20 mm	2300: 2,300mm 〃 3000: 3,000mm	T2: SCON SSEL XSEL-P/Q	N :No S :3m M:5m X□□:Length Specified	See the options table below

Model/Specification

Model	Encoder Type	Motor Output (W)	Lead (mm)	Stroke (mm)	Speed (mm/s)	Acceleration (Note 1)				Payload capacity (Note 1 & 2)				Rated Thrust (N)
						Horizontal (G)		Vertical (G)		Horizontal (kg)		Vertical (kg)		
						Rated	Maximum	Rated	Maximum	Rated Acceleration	Maximum Acceleration	Rated Acceleration	Maximum Acceleration	
NS-LXMXS-①-400-40-②-T2-③-AQ-④-RT	Absolute Incremental	400	40	2300~3000	2400	0.3		Horizontal Only		40		Horizontal Only		170
NS-LXMXS-①-400-20-②-T2-③-AQ-④-RT			20		1300	0.3				80				340.1

*In the model above, ① indicates the type of encoder, ② indicates the stroke, ③ indicates the cable length, and ④ indicates the option.

Option

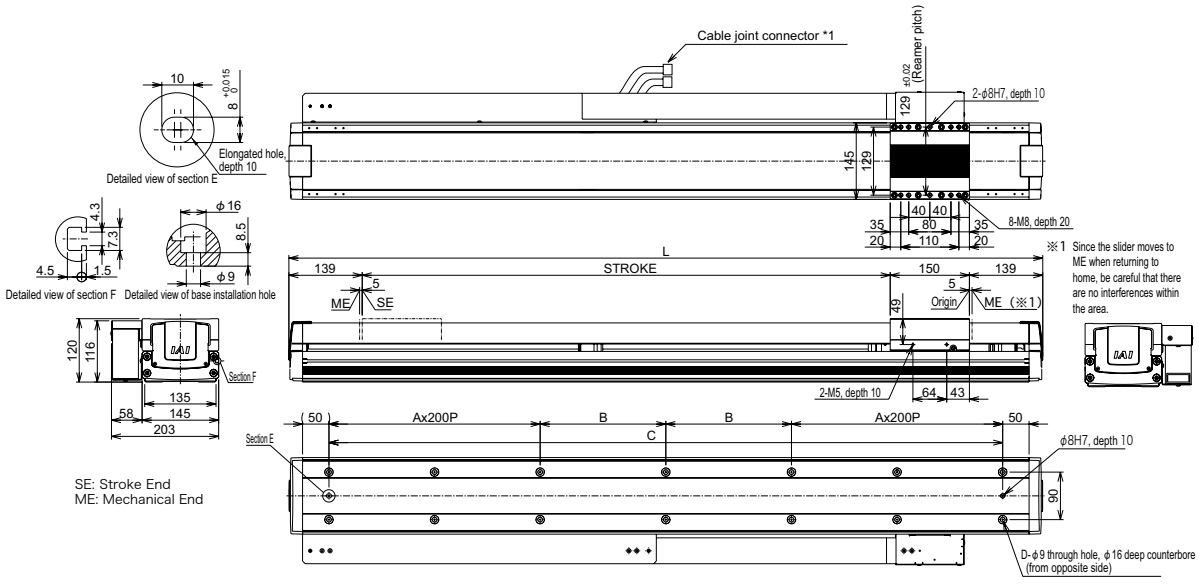
Name	Model	Reference page	Note
AQ Seal	AQ	→P5	Standard Equipment
Creep Sensor	C	→P5	
Installation Direction of Standard Cable Track	CT1~CT4	→P5	Enter CT1 for standard installation
Installation Direction of Extended Cable Track	ET1~ET4	→P5	
Limit Switch	L	→P6	
Guide with Ball-Retaining Mechanism	RT	→P6	Standard Equipment

Common specifications

Driving Method	Ball Thread, Diameter φ20 mm, Equivalent to Rolled C5
Repeated Positioning Accuracy	±0.01mm
Backlash	0.02 mm or less
Guide	Integrated to Base
Dynamic Allowable Moment (Note 3)	Ma: 104.9N·m, Mb: 149.9N·m, Mc: 248.9N·m
Overhung load length	Ma Direction: 750 mm or less; Mb and Mc Direction: 750 mm or less
Base	Material: Aluminium, White Alumite Treatment
Cable Length (Note 4)	N: No cable; S: 3 m; M: 5 m; X□□: Length specified
Ambient Temperature	0~40 degrees Celsius, 85% RH or less (No condensation)

Dimensional drawing

*1 Connects motor cables and encoder cables.
For details on cables, please see page 22.



Note: Due to their structure, models with a mid-support cannot be positioned horizontally on their side or vertically.

*For the internal dimensions of the cable track, please see page 6.

Stroke	2300	2400	2500	2600	2700	2800	2900	3000
L	2728	2828	2928	3028	3128	3228	3328	3428
A	5	6	6	6	6	7	7	7
B	288	138	188	238	288	138	188	238
C	2576	2676	2776	2876	2976	3076	3176	3276
D	26	30	30	30	30	34	34	34
Mass (kg)	46.4	47.9	49.4	50.9	52.3	53.8	55.3	56.8

Applicable Controller Specifications

Applicable Controller	Max. Number of Axes Controlled	Compatible Encoder Type	Operation Method	Power/ Voltage
X-SEL-P/Q	6 axis	Absolute/ Incremental	Programs	Three-Phase/ Single-Phase 200VAC
SSEL	2 axis			Single-Phase 100/200VAC
SCON	1 axis		Positioner Pulse Train Control	

Note

(Note 1) The maximum acceleration is 0.3 G.

(Note 2) The values shown are payload capacities during operation at maximum speed.

(Note 3) For a 10,000-km running life.

(Note 4) The maximum cable length is 30 m. Please specify length in meters. (E.g., X08 = 8 m)

(Note 5) When an axis with a long stroke (1,300 mm or more) is used hanging from the ceiling, the cover of the body may hang down and contact the slider. Therefore, in cases of such use, please contact our sales representative in advance.

NS-LZMS

Single-Axis Robot Large Nut Rotation Type Main Unit Width 145mm 400W
Vertical Type Single Slider

■Model

NS— LZMS— ☐ — 400 — ☐ — ☐ — T2 — ☐ — AQ — B — ☐ — RT

Series	Type	Encoder Type	Motor Type	Lead	Stroke	Applicable controller	Cable Length	Option
		A: Absolute I : Incremental	400: 400W	20: 20 mm	500: 500mm › 1000: 1,000mm	T2: SCON SSEL XSEL-P/Q	N :No S :3m M :5m X☐☐:Length Specified	See the options table below

Model/Specification

Model	Encoder Type	Motor Output (W)	Lead (mm)	Stroke (mm)	Speed (mm/s)	Acceleration (Note 1)				Payload capacity (Note 1 & 2)				Rated Thrust (N)
						Horizontal (G)		Vertical (G)		Horizontal (kg)		Vertical (kg)		
						Rated	Maximum	Rated	Maximum	Rated Acceleration	Maximum Acceleration	Rated Acceleration	Maximum Acceleration	
NS-LZMS-①-400-20-②-T2-③-AQ-B-④-RT	Absolute Incremental	400	20	500~1000	1000	Vertical Only		0.3	0.8	Vertical Only		16	6.0	340.1

*In the model above, ① indicates the type of encoder, ② indicates the stroke, ③ indicates the cable length, and ④ indicates the option.

Option

Name	Model	Reference page	Note
AQ Seal	AQ	→P5	Standard Equipment
Brake (*)	B	→P5	Standard Equipment
Creep Sensor	C	→P5	
Installation Direction of Standard Cable Track	CT1~CT4	→P5	Enter CT1 for standard installation
Installation Direction of Extended Cable Track	ET1~ET4	→P5	
Limit Switch	L	→P6	
Guide with Ball-Retaining Mechanism	RT	→P6	Standard Equipment

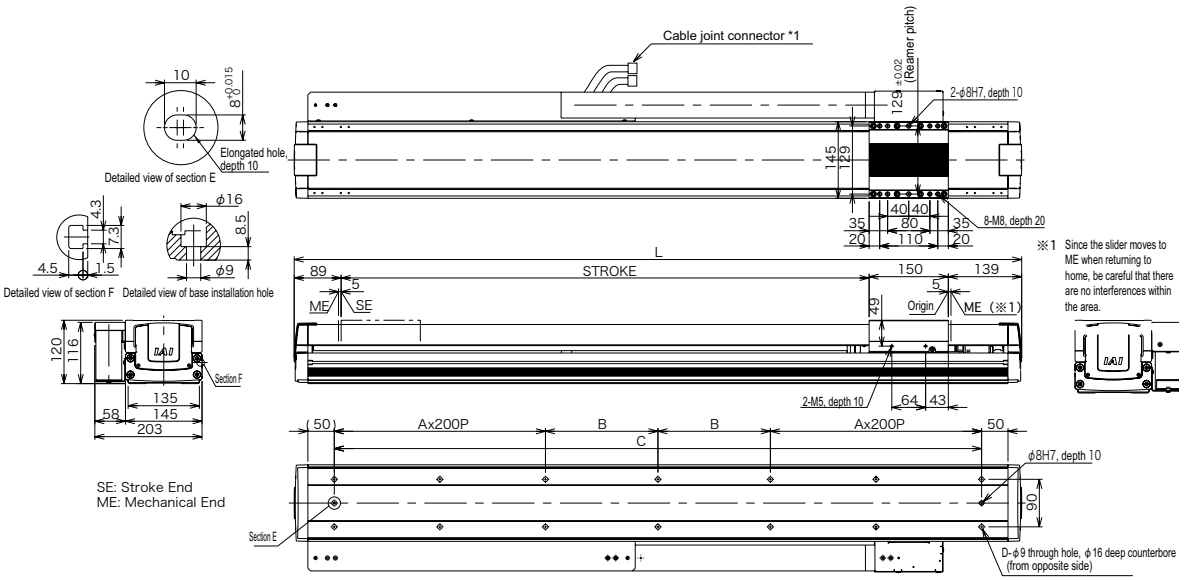
(*) A brake box is attached for powering the brake. (For details, see page 21)

Common specifications

Driving Method	Ball Thread, Diameter φ20 mm, Equivalent to Rolled C5
Repeated Positioning Accuracy	±0.01mm
Backlash	0.02 mm or less
Guide	Integrated to Base
Dynamic Allowable Moment (Note 3)	Ma: 104.9N·m; Mb: 149.9N·m; Mc: 248.9N·m
Overhung load length	Ma Direction: 750 mm or less; Mb and Mc Direction: 750 mm or less
Brake	Non-excitation electromagnetic brakes are installed as standard equipment
Base	Material: Aluminium, White Alumite Treatment
Cable Length (Note 4)	N: No cable; S: 3 m; M: 5 m; X☐☐: Length specified
Ambient Temperature	0~40 degrees Celsius, 85% RH or less (No condensation)

Dimensional drawing

*1 Connects motor cables and encoder cables.
For details on cables, please see page 22.



*For the internal dimensions of the cable track, please see page 6.

Stroke	500	600	700	800	900	1000
L	878	978	1078	1178	1278	1378
A	1	1	1	2	2	2
B	163	213	263	113	163	213
C	726	826	926	1026	1126	1226
D	10	10	10	14	14	14
Mass (kg)	19.9	21.4	22.9	24.4	25.9	27.4

Applicable Controller Specifications

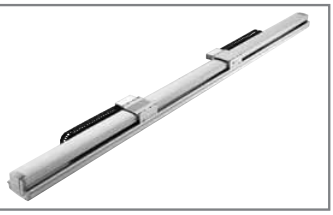
Applicable Controller	Max. Number of Axes Controlled	Compatible Encoder Type	Operation Method	Power/ Voltage
X-SEL-P/Q	6 axis	Absolute/ Incremental	Programs	Three-Phase/ Single-Phase 200VAC
SSEL	2 axis			Single-Phase 100/200VAC
SCON	1 axis		Positioner Pulse Train Control	

Note

(Note 1) For the relationship between acceleration and payload capacity, see page 4.
(Note 2) The values shown are payload capacities during operation at maximum speed.
(Note 3) For a 10,000-km running life.
(Note 4) The maximum cable length is 30 m. Please specify length in meters.
(E.g., X08 = 8 m)

NS-LZMM

Single-Axis Robot Large Nut Rotation Type Main Unit Width 145mm 400W
Vertical Type Multi-Slider



■Model

NS — LZMM — □ — 400 — □ — □ — T2 — □ — AQ — B — □ — RT

Series	Type	Encoder Type	Motor Type	Lead	Stroke	Applicable controller	Cable Length	
		A: Absolute I : Incremental	400: 400W	20: 20 mm	250: 250mm , 950: 950 mm	T2: SCON SSEL XSEL-P/Q	N :No S :3m M :5m X□□:Length Specified	See the options table below

Model/Specification

Model	Encoder Type	Motor Output (W)	Lead (mm)	Stroke (mm)	Speed (mm/s)	Acceleration (Note 1)				Payload capacity (Note 1 & 2)				Rated Thrust (N)
						Horizontal (G)		Vertical (G)		Horizontal (kg)		Vertical (kg)		
						Rated	Maximum	Rated	Maximum	Rated Acceleration	Maximum Acceleration	Rated Acceleration	Maximum Acceleration	
NS-LZMM-①-400-20-②-T2-③-AQ-B-④-RT	Absolute Incremental	400	20	250~950	1000	Vertical Only	0.3	0.8	Vertical Only	16	6.0			340.1

*In the model above, ① indicates the type of encoder, ② indicates the stroke, ③ indicates the cable length, and ④ indicates the option.

Option

Name	Model	Reference page	Note
AQ Seal	AQ	→P5	Standard Equipment
Brake (*)	B	→P5	Standard Equipment
Creep Sensor	C	→P5	
Standard/Extended Cable Track Selection	CT1/ET1	→P5	Enter CT1 for Standard Cable Track
Limit Switch	L	→P6	
Guide with Ball-Retaining Mechanism	RT	→P6	Standard Equipment

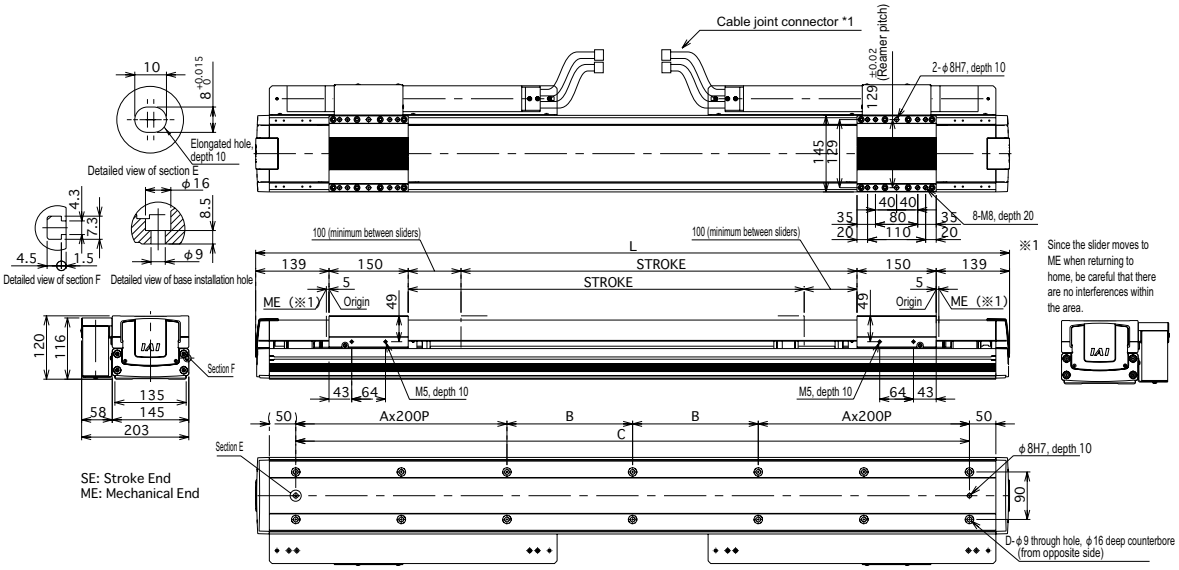
(*) A brake box is attached for powering the brake.
(For details, see page 21)

Common specifications

Driving Method	Ball Thread, Diameter φ20 mm, Equivalent to Rolled C5
Repeated Positioning Accuracy	±0.01mm
Backlash	0.02 mm or less
Guide	Integrated to Base
Dynamic Allowable Moment (Note 3)	Ma: 104.9N·m; Mb: 149.9N·m; Mc: 248.9N·m
Overhung load length	Ma Direction: 750 mm or less; Mb and Mc Direction: 750 mm or less
Brake	Non-excitation electromagnetic brakes are installed as standard equipment
Base	Material: Aluminium, White Alumite Treatment
Cable Length (Note 4)	N: No cable; S: 3 m; M: 5 m; X□□: Length specified
Ambient Temperature	0~40 degrees Celsius, 85% RH or less (No condensation)

Dimensional drawing

*1 Connects motor cables and encoder cables.
For details on cables, please see page 22.



*For the internal dimensions of the cable track, please see page 6.

Stroke	250	350	450	550	650	750	850	950
L	928	1028	1128	1228	1328	1428	1528	1628
A	1	1	1	2	2	2	2	3
B	188	238	288	138	188	238	288	138
C	776	876	976	1076	1176	1276	1376	1476
D	10	10	10	14	14	14	14	18
Mass (kg)	27.1	28.8	30.5	32.2	34	35.7	37.4	39.2

Applicable Controller Specifications

Applicable Controller	Max. Number of Axes Controlled	Compatible Encoder Type	Operation Method	Power/ Voltage
X-SEL-P/Q	6 axis	Absolute/ Incremental	Programs	Three-Phase/ Single-Phase 200VAC
SSEL	2 axis			Single-Phase 100/200VAC
SCON	1 axis		Positioner Pulse Train Control	

Note: A two-axis controller is required to operate the multi-slider.
Two controllers are required for SCON.
(Please note that SCON does not have a collision prevention mechanism)

Note

(Note 1) For the relationship between acceleration and payload capacity, see page 4.
(Note 2) The values shown are payload capacities during operation at maximum speed.
(Note 3) For a 10,000-km running life.
(Note 4) The maximum cable length is 30 m. Please specify length in meters.
(E.g., X08 = 8 m)

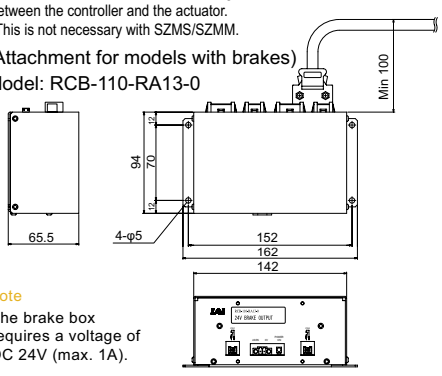
Controller

	Controller Series/Type	SCON	SSEL	XSEL	
				P (Standard) Type	Q (Global) Type
Basic Specifications	Form				
	Power Capacity	Maximum: 844VA	Maximum: 1660VA (For 400W 2-axis operation)	Maximum: 4988VA (For 6-axis operation total of 2400W)	
	Input Power	Single-Phase AC 200V	Single-Phase AC 100V Single-Phase AC 200V	Three-Phase AC 200V Single-Phase AC 200V	
	Range of Operating Power Voltages	±10%			
Control Specifications	Maximum total connected axes output (W)	750W(for 200V power supply)	400W(for 100V power supply) 800W(for 200V power supply)	2,400W(For three-phase) 1,600W(For single-phase)	
	Max. Number of Axes Controlled	1 axis	2 axis	6 axis	
	Position Detection Method	Incremental Encoder/Absolute Encoder			
	Safety Circuit Configuration	Duplexing not possible		Duplexing not possible	Duplexing possible
	Operation Method	Positioner Operation Pulse Train Control	Program Operation Positioner Operation (Switchable)	Program Operation Only	
Programs	Number of Programs	—	128		
	Number of Program Steps	—	9999		
	Number of Multi-Task Programs	—	8	16	
	Number of Positions	Maximum: 512	20000		
	Data Input Device (Optional)	Teaching Box Model: CON-T/RCM-E PC-Supported Soft ware Model: RCM-101-MW (For RS232 Communication) RCM-101-USB (For USB Communication)	Teaching Box Model: SEL-T-J/SEL-TD-J PC-Supported Soft ware Model: IA-101-X-MW-J (For RS232 Communication) IA-101-X-USB (For USB Communication)	Teaching Box Model: SEL-T/SEL-TD PC-Supported Soft ware Model: IA-101-X-MW (For RS232 Communication) IA-101-X-USBMW (For USB Communication)	Teaching Box Model: SEL-TD PC-Supported Soft ware Model: IA-101-XA-MW (With RS232 Communication Safety Category-Supported Cable)
Input/Output and Communication	Standard Input/Output	Input: 16 points/Output: 16 points (NPN/PNP Selection Allowed)	Input: 24 points/Output: 8 points (NPN/PNP Selection Allowed)	Input: 32 points/Output: 16 points (NPN/PNP Selection Allowed)	
	Expanded Input/Output	Not Possible		Maximum Input: 192 Maximum Output: 192	
	Field Network	DeviceNet, CC-Link, ProfiBus	(Will be supported)	DeviceNet, CC-Link, ProfiBus, Ethrnet	
General Specifications	Ambient Temperature/Humidity during Operation	0~40°C 10~95%(No condensation)			
	Ambient Air during Operation	No Corrosive gas. Especially no dust.			
	Outer Dimensions	72(W)×200.5(H)×121(D)	100(W)×202.6(H)×126(D) When the absolute battery is installed	340(W)×195(H)×125.3(D) (For 6-axis absolute specification)	
	Mass	1.1 kg	1.4kg	5.7kg(For 6-axis absolute specification)	
	Attachments	I/OFlat Cable(40 Cores)	I/OFlat Cable(34 Cores)	I/OFlat Cable(50 Cores)	

■Brake Box (Attachment)

With the vertical types (MZMS/MZMM/LZMS/LZMM), this device must be installed while wiring the encoder between the controller and the actuator.
*This is not necessary with SZMS/SZMM.

(Attachment for models with brakes)
Model: RCB-110-RA13-0



Note
The brake box requires a voltage of DC 24V (max. 1A).

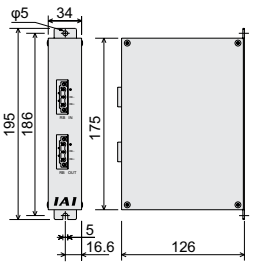
■Regenerative Resistance Unit (Optional)

■Features This unit converts the regenerative current from a decelerating motor into heat. Refer to the following table to determine the required number of regenerative resistors according to the total wattage of the actuator.

■Models
REU-1 (for XSEL)
REU-2 (for SCON/SSEL)

	Horizontal			Vertical		
	XSEL	SSEL	SCON	XSEL	SSEL	SCON
0	~100W	~200W	~100W	~100W	~200W	~100W
1	~500W	~800W	~400W	~800W	~600W	~400W
2	~800W			~1200W	~800W	~750W
3	~1200W			~1600W		
4	~2000W			~2000W		
5	~2400W			~2400W		

*Depending on the operating conditions, the number of regenerative resistors required may be larger than the number listed in the table above.
*If two regenerative resistance units are required for SCON/SSEL, use model REU-1 as the second unit.

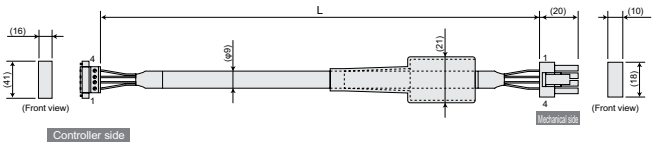


Maintenance Parts

Motor Cable(for XSEL-J/K/P/Q,SSEL,SCON)

Model: **CB-X-MA□□□**

* □□□is for the cable length (L); supports up to 30m
Example: 080=8m



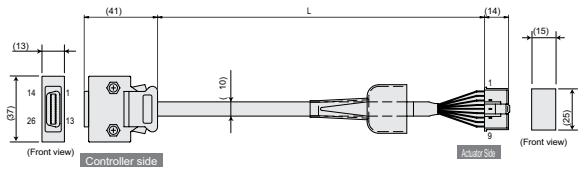
Wire	Color	Signal	No.
0.75sq	Green	PE	1
	Red	U	2
	White	V	3
	Black	W	4

No.	Signal	Color	Wire
1	U	Red	0.75 sq (crimped)
2	V	White	
3	W	Black	
4	PE	Green	

Encoder Cable (For XSEL-P/Q,SSEL,SCON)

Model: **CB-X3-PA□□□**

*□□□ is for the cable length (L); supports up to 30 m.
Example: 080 = 8 m



Wire	Color	Signal	No.
			10
			11
		E24V	12
	White/Green	0V	13
	White/Orange	LS	26
		CLEEP	25
		OT	24
		RSV	23
			9
			18
			19
AWG26 (soldered)	White/Blue	A+	1
	White/Yellow	A	2
	White/Red	B+	3
	White/Black	B	4
	White/Purple	Z+	5
	White/Gray	Z	6
	Orange	SRD+	7
	Green	SRD	8
	Purple	BAT+	14
	Gray	BAT	15
	Red	VCC	16
	Black	GND	17
	Blue	BKR	20
	Yellow	BKR+	21
			22

The shield is clamped to the hood.

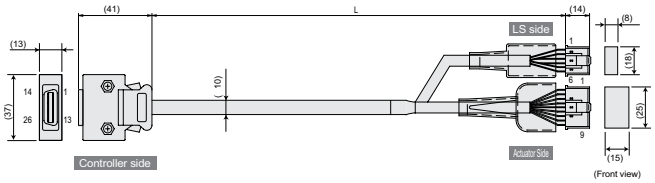
Drain wire and shield braid

No.	Signal	Color	Wire
1	A	White/Blue	AWG26 (crimped)
2	A	White/Yellow	
3	B	White/Red	
4	B	White/Black	
5	Z	White/Purple	
6	Z	White/Gray	
7	LS+	White/Orange	
8			
9	FG	Drain	
10	SD	Orange	
11	SD	Green	
12	BAT+	Purple	
13	BAT	Gray	
14	VCC	Red	
15	GND	Black	
16	LS	White/Green	
17	BK	Blue	
18	BK+	Yellow	

Encoder Cable (for connecting devices with XSEL-P/Q,SSEL,SCON,LS)

Model: **CB-X2-PLA□□□**

*□□□ is for the cable length (L); supports up to 30 m.
Example: 080 = 8 m



Wire	Color	Signal	No.
			10
			11
	White/Orange	E24V	12
	White/Green	0V	13
	Brown/Blue	LS	26
	Brown/Yellow	CLEEP	25
	Brown/Red	OT	24
	Brown/Black	RSV	23
			9
			18
			19
AWG26 (soldered)	White/Blue	A+	1
	White/Yellow	A	2
	White/Red	B+	3
	White/Black	B	4
	White/Purple	Z+	5
	White/Gray	Z	6
	Orange	SRD+	7
	Green	SRD	8
	Purple	BAT+	14
	Gray	BAT	15
	Red	VCC	16
	Black	GND	17
	Blue	BKR	20
	Yellow	BKR+	21
			22

The shield is clamped to the hood.

Drain wire and shield braid

(Wire colors written as "White/Blue" indicate the band color/insulation color.)

No.	Signal	Color	Wire
1	E24V	White/Orange	AWG26 (crimped)
2	0V	White/Green	
3	LS	Brown/Blue	
4	CLEEP	Brown/Black	
5	OT	Brown/Red	
6	RSV	Brown/Black	

No.	Signal	Color	Wire
1	A	White/Blue	AWG26 (crimped)
2	A	White/Yellow	
3	B	White/Red	
4	B	White/Black	
5	Z	White/Purple	
6	Z	White/Gray	
7			
8			
9	FG	Drain	
10	SD	Orange	
11	SD	Green	
12	BAT+	Purple	
13	BAT	Gray	
14	VCC	Red	
15	GND	Black	
16			
17	BK	Blue	
18	BK+	Yellow	